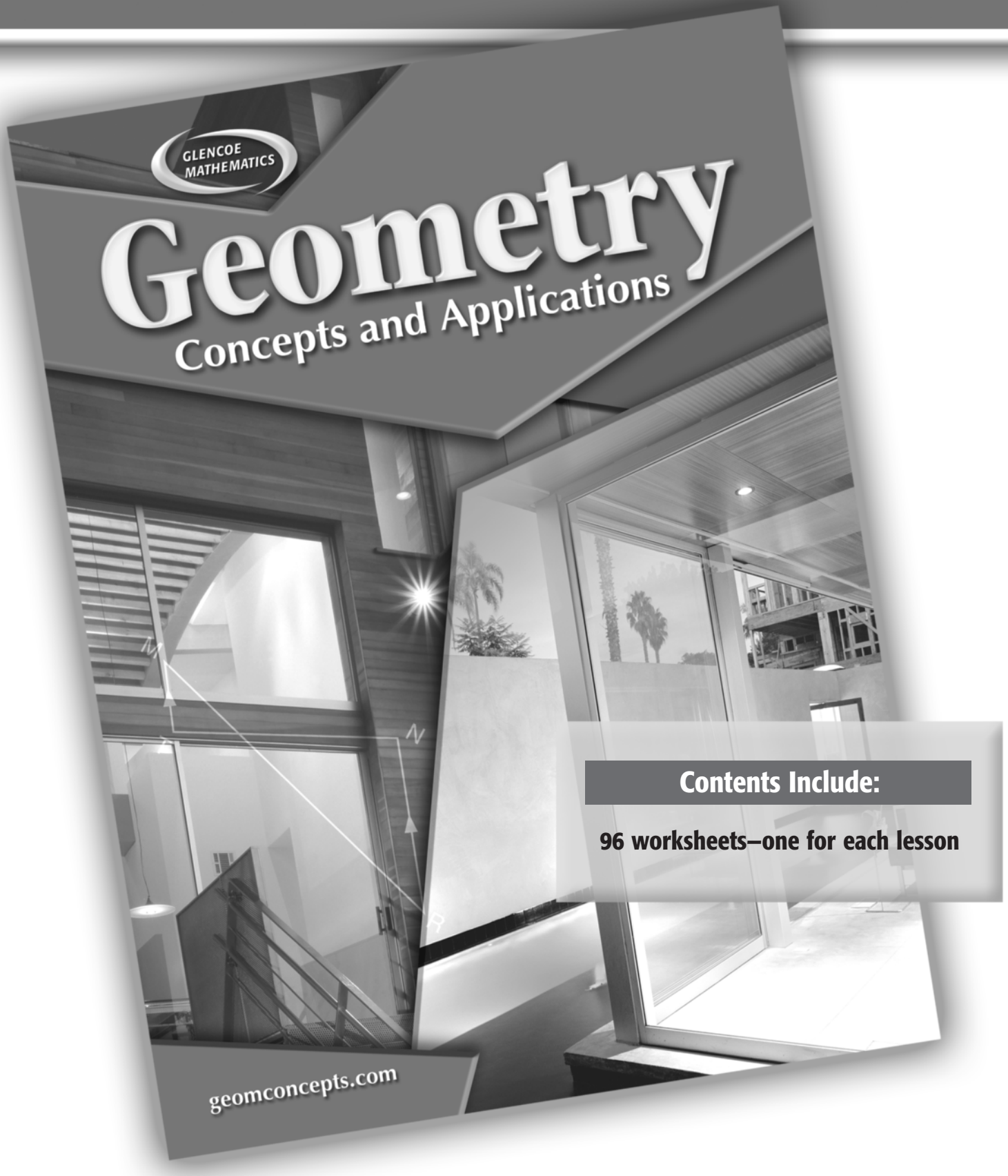
Skills Practice Workbook



Contents Include:

96 worksheets—one for each lesson

To The Student:

This *Skills Practice Workbook* gives you additional problems for the concept exercises in each lesson. The exercises are designed to aid your study of geometry by reinforcing important mathematical skills needed to succeed in the everyday world. The material is organized by chapter and lesson, with one skills practice worksheet for every lesson in *Geometry: Concepts and Applications*.

To the Teacher:

Answers to each worksheet are found in *Geometry: Concepts and Applications Chapter Resource Masters* and also in the Teacher Wraparound Edition of *Geometry: Concepts and Applications*.

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Geometry: Concepts and Applications
Skills Practice Workbook

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CONTENTS

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1–1 Skills Practice

Patterns and Inductive Reasoning

Tell how to find the next term in each pattern.

1. 7, 12, 17, 22, . . .

2. 1, 3, 9, 27, . . .

3. 50, 46, 42, 38, . . .

4. 10, 20, 40, 80, . . .

5. −4, −1, 2, 5, 8, . . .

6. 144, 134, 124, 114, . . .

Find the next three terms of each sequence.

7. 2, 7, 12, 17, . . .

8. 100, 93, 86, 79, . . .

9. 11, 22, 33, 44, . . .

10. 1, 4, 14, 56, . . .

11. −2, 4, −8, 16, −32, . . .

12. 0, 6, 12, 18, . . .

13. 99, 86, 73, 60, . . .

14. 25, 26, 24, 25, . . .

15. 30, 31, 33, 36, . . .

16. 5, 10, 20, 40, . . .

17. 220, 210, 190, 160, . . .

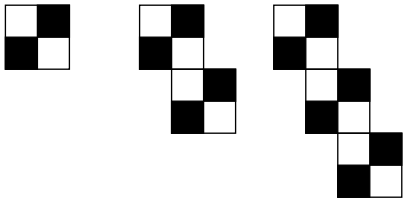
18. 7, 7, 14, 42, . . .

Draw the next figure in each pattern.

19.

20.

21.



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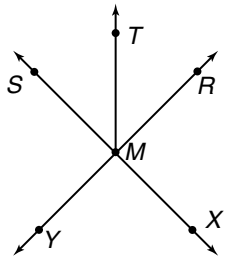
1–2 Skills Practice

Points, Lines, and Planes

Use the figure at the right to name examples of each term.



1. four points

2. two lines

3. four segments

4. one ray whose endpoint is M

5. three collinear points

6. one point that is *not* on $\overleftrightarrow{YR}$

7. a segment with points T and M as its endpoints

8. a line that does not contain R

9. a line containing M

10. a segment that lies on $\overleftrightarrow{YR}$

Determine whether each model suggests a point, a line, a ray, a segment, or a plane.

11. a toothpick

12. a floor

13. the tip of a pin

14. the surface of the water in a swimming pool

15. a beam of light from a laser

16. fence pole

Draw and label a figure for each situation described.

17. point K lies on $\overleftrightarrow{RT}$

18. plane $\mathcal{H}$ contains line a

19. $\overleftrightarrow{AB}$ lies in plane $\mathcal{M}$ containing point R not on $\overleftrightarrow{AB}$

20. $\overrightarrow{AX}$ and $\overrightarrow{AY}$ such that point A is the only point common to both rays

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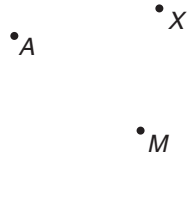
1–3 Skills Practice

Postulates

Refer to the figure at the right.

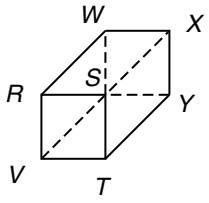
1. Name all of the different lines that can be drawn through the set of points.



2. Name the intersection of $\overleftrightarrow{AX}$ and $\overleftrightarrow{AM}$.

Name all of the planes that are represented in each figure.

3.



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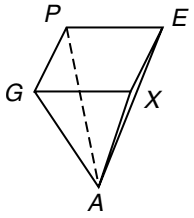
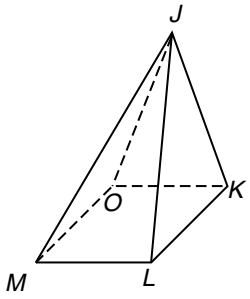


Refer to the figure at the right.



5. Name the intersection of plane JLM and plane JKL.

6. Name the intersection of plane JKO and plane JOM.

7. Name two planes that intersect in $\overleftrightarrow{ML}$.

8. Name two planes that intersect in $\overleftrightarrow{JM}$.

Determine whether each statement is* true *or* false*. If a statement is false, explain why.

9. If you have two points, then there is only one line that contains both points.

10. The intersection of two distinct lines is two points.

11. If you have three noncollinear points, then you have two different planes.

12. A line is the intersection of two distinct planes.

13. One point can be the only intersection of two planes.

14. Three planes can intersect in one line.

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Skills Practice

Conditional Statements and Their Converses

Identify the hypothesis and the conclusion of each statement.

1. If you purchase a computer and do not like it, then you can return it within 30 days.

2. If $x + 8 = 15$, then $x = 7$

3. If the drama club raises $2000, then they will go on tour.

4. If the temperature today is 80° or more, then you will go swimming.

5. If two lines intersect, then the intersection is a point.

Write two other forms of each statement.

6. If two planes intersect, then the intersection is a line.

7. If it snows, then you will go sledding.

8. Your dog will be happy if you feed him Doggy Chow.

9. Hiking will be easier if you have hiking boots.

10. All squares have four sides of equal length and four right angles..

Write the converse of each statement.

11. If a figure is a triangle, then it has three sides.

12. If you find a penny, then you will have good luck.

13. If you ride your bicycle recklessly, then you can get hurt.

14. If two distinct lines intersect, then their intersection is one point.

15. If your cat purrs, then it is contented.

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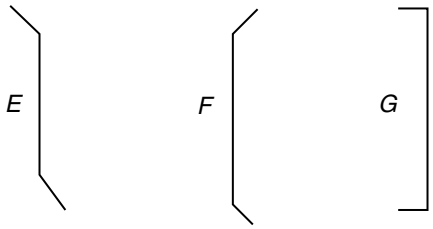
1–5 Skills Practice

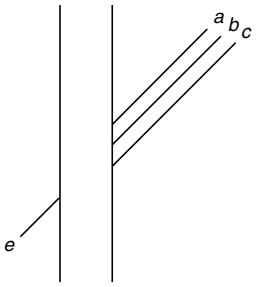
Tools of the Trade

Use a straightedge or compass to answer each question.

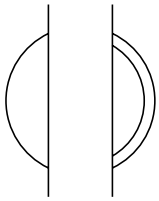
1. Which segment is longest?



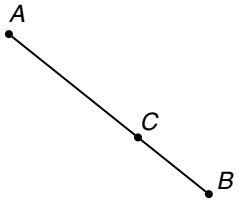
2. Which of the three segments at the upper right forms a straight line with the segment at the lower left?



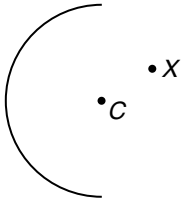
3. Does the inner arc or the outer arc on the right side of the segments go with the arc on the left side to form part of a circle?



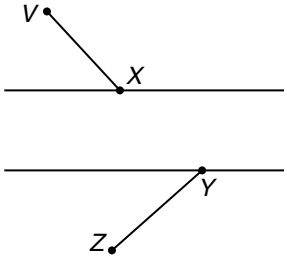
4. Is C the midpoint of $\overline{AB}$?



5. If the circle with center C is drawn completely, will point X lie on the circle?



6. If extended, will $\overline{VX}$ intersect $\overline{ZY}$ at Y ?



1–6

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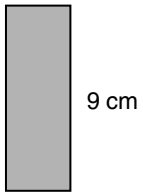
Skills Practice

A Plan for Problem Solving

Find the perimeter and area of each rectangle.

1.

2.



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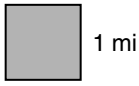

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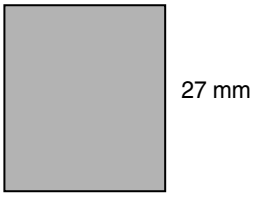

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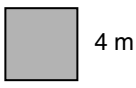


Find the perimeter and area of each rectangle described.

7. $\ell = 7$ ft, $w = 2$ ft

8. $\ell = 2$ in., $w = 1$ in.

9. $\ell = 26$ cm, $w = 23$ ft

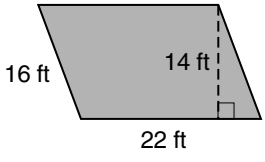
10. $\ell = 9$ mi, $w = 1$ mi

11. $\ell = 7$ m, $w = 7$ m

12. $\ell = 5$ yd, $w = 25$ yd

Find the area of each parallelogram.

13.



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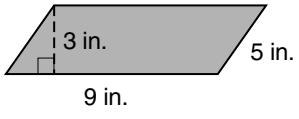

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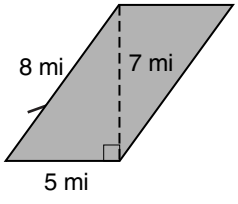

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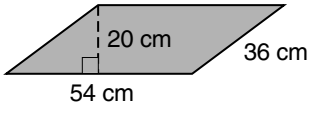

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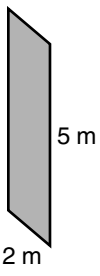

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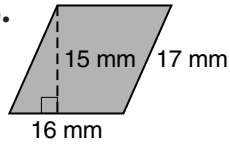

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2–1 Skills Practice

Real Numbers and Number Lines

Write a real number with five digits to the right of the decimal point.

1. an irrational number between 2 and 3

2. a rational number between -2 and -3 with a 2-digit repeating pattern

3. two rational numbers between 3 and 4

4. an irrational number greater than 10

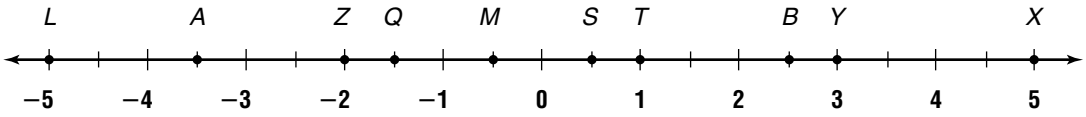
5. a rational number greater than 15 but less than 20

6. an irrational number less than 30

7. an irrational number less than -5

8. a rational number greater than -8 with a 2-digit repeating pattern

Use a number line to find each measure.



9. LX **10.** TX **11.** ZT **12.** LZ

13. QM **14.** MS **15.** BX **16.** BT

17. ST **18.** LQ **19.** BY **20.** AX

Consider 0.27, $0.2\overline{7}$, and $0.\overline{27}$.

21. How are these numbers alike?

22. How are they different?

23. Which number is greatest?

24. How would you read each number?

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2–2

Skills Practice

Segments and Properties of Real Numbers

Three segment measures are given. The three points named are collinear. Determine which point is between the other two.

1. $XY = 15$, $AY = 31$, $AX = 46$

2. $AB = 12$, $BC = 20$, $AC = 32$

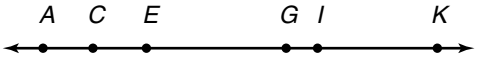
3. $MO = 75$, $MC = 34$, $OC = 41$

4. $DE = 58$, $GE = 12$, $DG = 70$

5. $HM = 2$, $JM = 1$, $HJ = 3$

6. $WX = 8$, $WA = 4$, $AX = 4$

Use the line to find each measure.



7. If $AC = 10$ and $CG = 21$, find AG.

8. If $AI = 72$ and $GI = 11$, find AG.

9. If $CG = 24$ and $EG = 14$, find CE.

10. If $AK = 80$ and $IK = 24$, find AI.

11. If $AC = 18$ and $CK = 72$, find AK.

12. If $CI = 65$ and $GI = 13$, find CG.

Find the length of each segment in centimeters and in inches.

13. _____

14. _____

15. _____

16. _____

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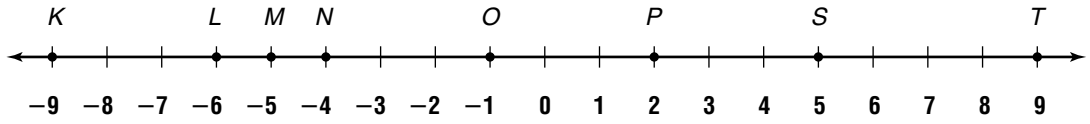
2–3 Skills Practice

Congruent Segments

Use the number line to determine whether each statement is* true *or* false*. Explain your reasoning.



1. $\overline{LM}$ is congruent to $\overline{NO}$.

2. $\overline{OS}$ is congruent to $\overline{OL}$.

3. M is the midpoint of $\overline{LN}$.

4. $\overline{PS}$ is congruent to $\overline{NO}$.

5. O is the midpoint of $\overline{LS}$.

6. $\overline{KS}$ is congruent to $\overline{LT}$.

7. $\overline{PS}$ is congruent to $\overline{KL}$.

8. The origin is the midpoint of $\overline{KT}$.

Determine whether each statement is* true *or* false*. Explain your reasoning.

9. If $\overline{GH} \cong \overline{AZ}$, then $GH = AZ$.

10. Every segment has only one midpoint.

11. A ray cannot bisect a segment.

12. If $\overline{DE} \cong \overline{WX}$ and $\overline{WX} \cong \overline{SP}$, then $\overline{DE} \cong \overline{SP}$.

13. If a segment has been bisected, then it is separated into two congruent segments.

14. If M is the midpoint of $\overline{AB}$, then $\overline{AM} \cong \overline{MB}$.

15. A plane cannot bisect a segment.

16. If points A, B, and C are collinear, then B lies between A and C.

17. A segment can have several midpoints.

18. If Y is between X and Z, then $XY = YZ$.

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2–4 Skills Practice

The Coordinate Plane

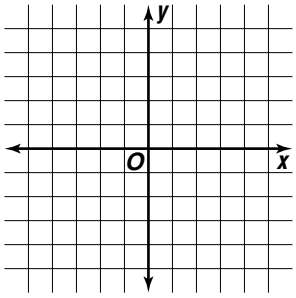
Graph and label each point on the coordinate plane.

1. $Z(0, 5)$ **2.** $T(5, -5)$ **3.** $B(5, 2)$

4. $Q(-3, 3)$ **5.** $D(-4, -4)$ **6.** $X(0, -4)$

7. $M(2, 5)$ **8.** $H(-4, 0)$ **9.** $F(-3, 1)$

10. $R(1, 1)$ **11.** $C(3, 4)$ **12.** $A(2, 0)$



Name the ordered pair for each point.

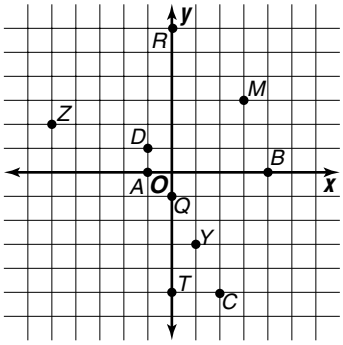
13. R **14.** T

15. Z **16.** B

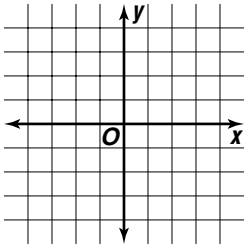
17. D **18.** Q

19. Y **20.** M

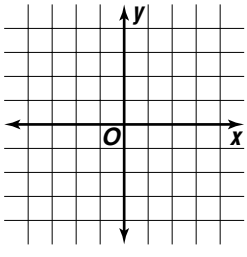
21. A **22.** C



23. Graph $x = 2$.



24. Graph $y = -1$.



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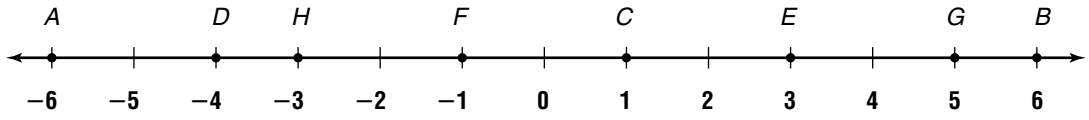
2–5 Skills Practice

Midpoints

Use the number line to find the coordinate of the midpoint of each segment.



1. $\overline{CE}$

2. $\overline{FC}$

3. $\overline{HF}$

4. $\overline{HC}$

5. $\overline{AD}$

6. $\overline{DB}$

7. $\overline{CG}$

8. $\overline{GB}$

9. $\overline{DH}$

The coordinates of the endpoints of a segment are given. Find the coordinates of the midpoint of each segment.

10. (0, 10), (0, 0)

11. (8, 0), (0, 0)

12. (0, −6), (0, 0)

13. (−20, 0), (0, 0)

14. (4, 12), (8, 20)

15. (−2, 3), (2, 5)

16. (1, −6), (−5, −10)

17. (−5, −14), (−1, −8)

18. (−1, −15), (9, 15)

19. (7, 2), (−7, −2)

20. (7, −5), (3, 15)

21. (−9, 7), (3, 5)

22. (1, 3), (4, 8)

23. (−6, 7), (9, 10)

3–1

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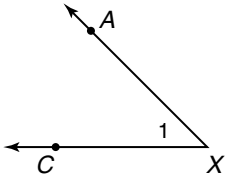
Skills Practice

Angles

Name each angle in four ways. Then identify its vertex and its sides.

1.



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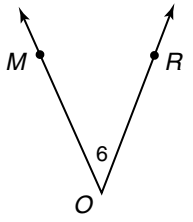

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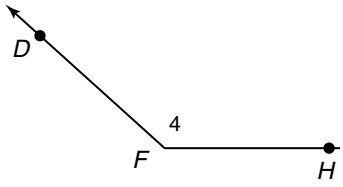
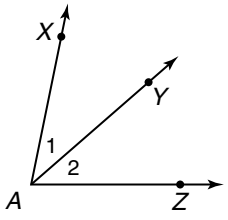


Name all angles having A as their vertex.

4.



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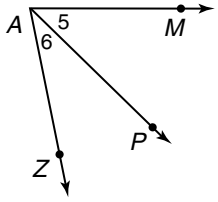
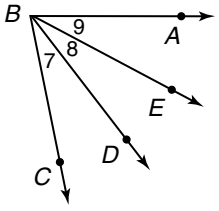
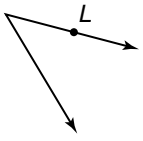


6.



Tell whether each point is in the* interior, exterior *or* on *the angle.

7.



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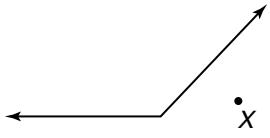

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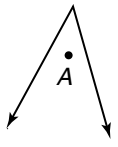

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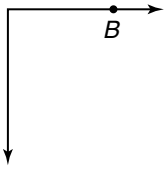

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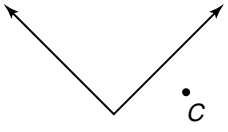

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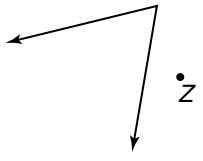


***Determine whether each statement is* true *or* false.**

13. The figure formed by opposite rays is sometimes referred to as a straight angle.

14. The vertex is in the exterior of an angle.

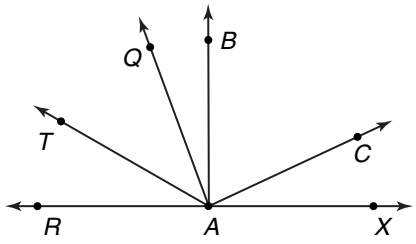
15. An angle separates the plane into two parts: the interior and the exterior of the angle.

NAME _____ DATE _____ PERIOD _____

Skills Practice

Angle Measure

***Use a protractor to find the measure of each angle. Then classify each angle as* acute, obtuse, *or* right.**



1. $\angle TAR$

2. $\angle BAX$

3. $\angle CAX$

4. $\angle TAX$

5. $\angle BAR$

6. $\angle QAB$

7. $\angle RAC$

8. $\angle TAC$

9. $\angle QAC$

10. $\angle QAR$

11. $\angle QAX$

12. $\angle TAB$

***Use a protractor to draw an angle having each measurement. Then classify each angle as* acute, obtuse, *or* right.**

13. 50°

14. 120°

15. 90°

16. 25°

17. 100°

18. 140°

19. 10°

20. 135°

21. 85°

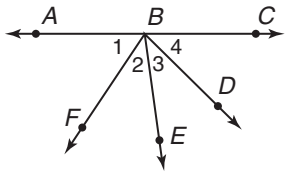
3–3

NAME _____ DATE _____ PERIOD _____

Skills Practice

The Angle Addition Postulate

Refer to the figure at the right.



1. If $m\angle ABE = 100$ and $m\angle ABF = 65$, find $m\angle 2$.

2. Find $m\angle 4$ if $m\angle EBC = 80$ and $m\angle EBD = 44$.

3. Find $m\angle 3$ if $m\angle FBD = 85$ and $m\angle FBE = 42$.

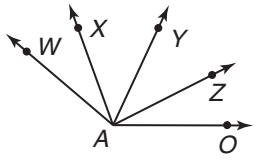
4. If $m\angle ABE = 105$ and $m\angle EBD = 46$, find $m\angle ABD$.

5. If $m\angle ABF = 46$ and $m\angle FBE = 54$, find $m\angle ABE$.

6. Find $m\angle FBC$ if $m\angle 2 = 45$ and $m\angle EBC = 78$.

7. If $m\angle FBD = 102$ and $\overrightarrow{BE}$ bisects $\angle FBD$, find $\angle FBE$.

Refer to the figure at the right.



8. If $m\angle WAZ = 95$ and $m\angle ZAO = 40$, find $m\angle WAO$.

9. If $\angle WAZ$ is a right angle and $m\angle YAZ = 35$, find $m\angle WAY$.

10. If $m\angle XAZ = 82$ and $\overrightarrow{AY}$ bisects $\angle XAZ$, find $m\angle YAZ$.

11. If $m\angle WAY = 66$ and $\overrightarrow{AX}$ bisects $\angle WAY$, find $m\angle XAY$.

12. Find $m\angle YAO$ if $m\angle WAO = 130$ and $m\angle WAY = 70$.

13. If $m\angle WAO = 142$, and $\overrightarrow{AY}$ bisects $\angle WAO$, find $m\angle WAY$.

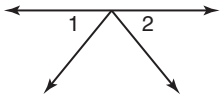
14. Find $m\angle XAO$ if $m\angle XAY = 35$, $m\angle YAZ = 40$, and $m\angle ZAO = 42$.

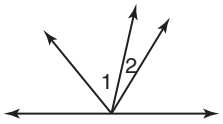
NAME _____ DATE _____ PERIOD _____

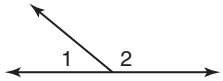
Skills Practice

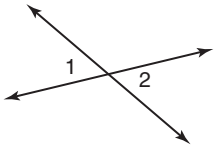
Adjacent Angles and Linear Pairs of Angles

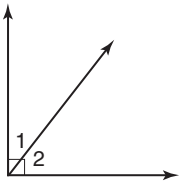
Use the terms* adjacent angles, linear pair, *or* neither *to describe angles 1 and 2 in as many ways as possible.

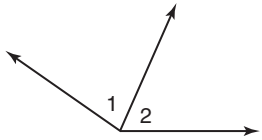
1. 

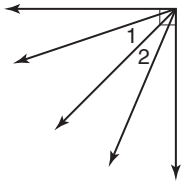
2. 

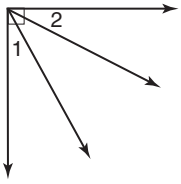
3. 

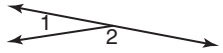
4. 

5. 

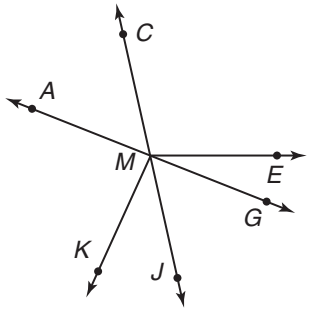
6. 

7. 

8. 

9. 

In the figure at the right, $\overrightarrow{MA}$ and $\overrightarrow{MG}$ are opposite rays. Also, $\overrightarrow{MC}$ and $\overrightarrow{MJ}$ are opposite rays.



10. Which angle forms a linear pair with $\angle AMC$?

11. Do $\angle CME$ and $\angle EMJ$ form a linear pair? Justify your answer.

12. Name two angles that are adjacent to $\angle EMG$.

13. Name two angles that form a linear pair with $\angle JMG$.

14. Name three angles that are adjacent to $\angle AMK$.

NAME _____ DATE _____ PERIOD _____

Skills Practice

Complementary and Supplementary Angles

Refer to the figures at the right.

1. Name a pair of complementary angles.

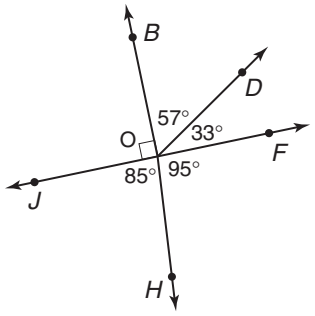
2. Name two right angles.

3. Name three pairs of adjacent supplementary angles.

4. Find the measure of an angle that is complementary to $\angle JOH$.

5. Find the measure of an angle that is supplementary to $\angle DOF$.

6. Find the measure of $\angle BOH$.



Exercises 1-6

7. Name a pair of complementary angles.

8. Name two right angles.

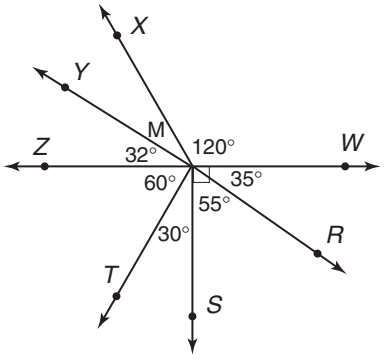
9. Find the measure of an angle that is complementary to $\angle YMZ$.

10. Find the measure of an angle that is supplementary to $\angle WMT$.

11. Find the measure of $\angle XMY$.

12. Is $\angle YMT$ a right angle? Justify your answer.

13. Find the measure of an angle that is supplementary to $\angle XMR$.



Exercises 7-13

14. Find $m\angle 3$ if $\angle 3$ and $\angle 4$ form a linear pair and $m\angle 4 = 55$.

15. If $\angle 1$ and $\angle 2$ form a linear pair and $m\angle 1 = 130$, find $m\angle 2$.

16. Angles *DEF* and *XYZ* form a linear pair. If $m\angle DEF = 170$, what is $m\angle XYZ$?

17. If $\angle 4$ and $\angle 8$ are complementary and $m\angle 4 = 45$, find $m\angle 8$.

18. If $m\angle 3 = 10$ and $\angle 3$ and $\angle 7$ are complementary, what is $m\angle 7$?

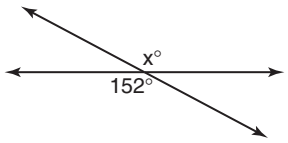
NAME _____ DATE _____ PERIOD _____

Skills Practice

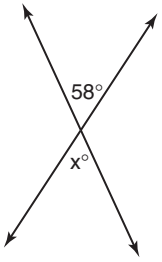
Congruent Angles

Find the value of x in each figure.

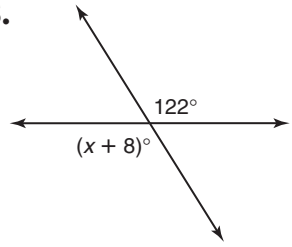
1.



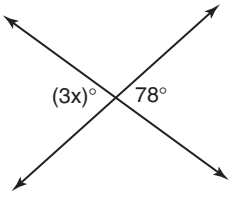
2.



3.



4.



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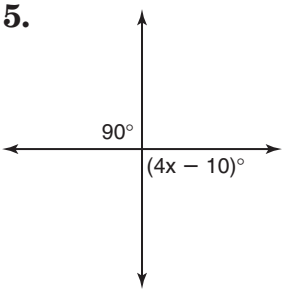
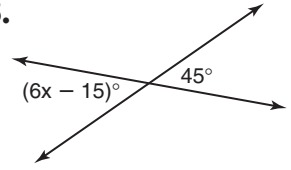
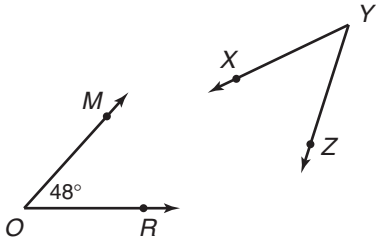


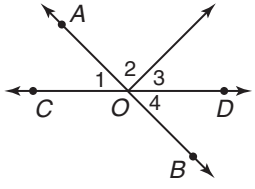
6.



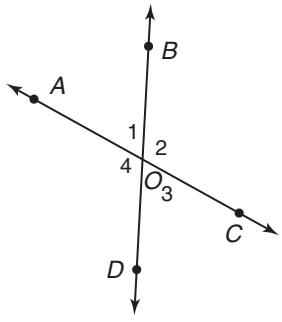
7. What is the measure of an angle complementary to $\angle XYZ$ if $\angle MOR \cong \angle XYZ$?



8. $\overrightarrow{OA}$ and $\overrightarrow{OB}$ are opposite rays and $\overrightarrow{OC}$ and $\overrightarrow{OD}$ are also opposite rays. If $m\angle 2 = 90$ and $m\angle 1$ and $= 45$, what is $m\angle 4$?



Use the figure at the right.



9. If $\angle 1 \cong \angle 3$ and $m\angle 1 = 64$, find the measure of an angle that is supplementary to $\angle 3$.

10. If $\angle AOB$ is supplementary to $\angle BOC$, $\angle BOC$ is supplementary to $\angle COD$, and $m\angle AOB = 58$, find $m\angle BOC$ and $m\angle COD$.

11. Find the measure of an angle that is complementary to $\angle 1$ if $\angle 1 \cong \angle 2$ and $m\angle 2 = 75$.

12. Find the measure of an angle that is supplementary to $\angle 4$ if $\angle 4 \cong \angle 9$ and $m\angle 9 = 24$.

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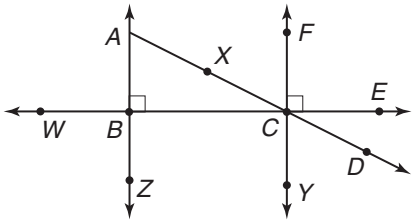
Skills Practice

Perpendicular Lines

$\overleftrightarrow{AB} \perp \overleftrightarrow{BE}$, $\overleftrightarrow{FC} \perp \overleftrightarrow{BE}$, and point X is the midpoint of $\overline{AC}$. Determine whether each of the following is* true *or* false.



1. $\angle XCB \cong \angle DCE$

2. $\angle BCY$ is a right angle.

3. $\angle FCE$ and $\angle FCX$ are supplementary.

4. $\overleftrightarrow{AB} \perp \overleftrightarrow{BC}$

5. $\angle FCD$ is a right angle.

6. $\angle FCX$ and $\angle XCB$ are complementary.

7. $m\angle WBZ > m\angle WBA$

8. $\overleftrightarrow{FC}$ is the only line $\perp$ to $\overleftrightarrow{WE}$ at C

9. $\angle FCE$ and $\angle YCE$ are supplementary.

10. $\overline{AX} \cong \overline{XC}$

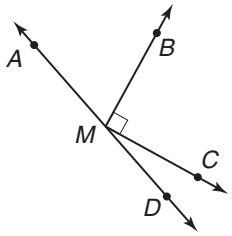
11. $\angle FCD \cong \angle WBA$

12. $\overline{AX} \cong \overline{FC}$

13. $\overleftrightarrow{AB} \perp \overline{AC}$

14. $\angle XCF \cong \angle DCY$

$\overleftrightarrow{BM} \perp \overleftrightarrow{MC}$, $\overrightarrow{MA}$ and $\overrightarrow{MD}$ are opposite rays.



15. If $m\angle DMC = 25$, find $m\angle AMB$.

16. If $m\angle AMB = 72$, find $m\angle DMC$.

17. If $m\angle DMC = 2x + 2$ and $m\angle AMB = 8x - 2$, find $m\angle DMC$ and $m\angle AMB$.

NAME _____ DATE _____ PERIOD _____

4–1 Skills Practice

Parallel Lines and Planes

Describe each pair of segments in the prism as* parallel*, skew, or* intersecting*.

1. $\overline{EG}$, $\overline{ML}$

2. $\overline{LK}$, $\overline{EG}$

3. $\overline{LK}$, $\overline{GH}$

4. $\overline{EG}$, $\overline{GH}$

5. $\overline{JN}$, $\overline{ML}$

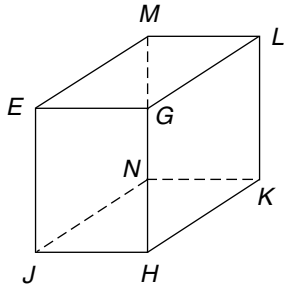
6. $\overline{LK}$, $\overline{NK}$

7. $\overline{NK}$, $\overline{JH}$

8. $\overline{EG}$, $\overline{HK}$

9. $\overline{MN}$, $\overline{LK}$

10. $\overline{MN}$, $\overline{GL}$



Use the figure for Exercises 1–10. Name the parts of the rectangular prism.

11. six planes

12. all pairs of parallel planes

13. all segments skew to $\overline{JH}$

14. all segments parallel to $\overline{EG}$

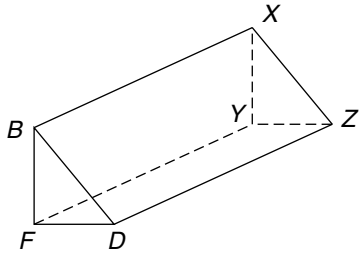
15. all segments intersecting $\overline{ML}$

16. all segments parallel to $\overline{JN}$

Name the parts of the triangular prism.

17. all pairs of intersecting planes

18. all pairs of parallel segments



19. all pairs of skew segments

20. all points at which three segments intersect

NAME _____ DATE _____ PERIOD _____

4–2

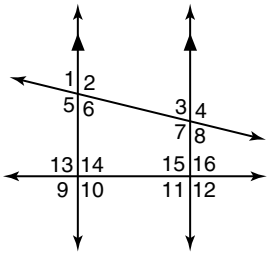
Skills Practice

Parallel Lines and Transversals

***Identify each pair of angles as* alternate interior, alternate exterior, consecutive interior, *or* vertical.**

1. ∠1 and ∠6

2. ∠2 and ∠3



3. ∠2 and ∠7

4. ∠1 and ∠8

5. ∠2 and ∠5

6. ∠10 and ∠11

7. ∠13 and ∠12

8. ∠5 and ∠4

9. ∠3 and ∠8

10. ∠14 and ∠15

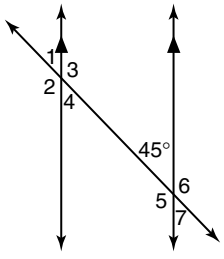
11. ∠9 and ∠14

12. ∠14 and ∠11

Find the measure of each angle. Give a reason for each answer.

13. ∠7

14. ∠4

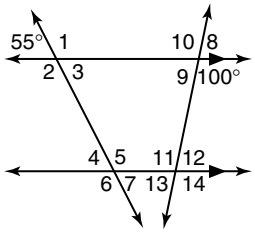


15. ∠3

16. ∠6

Find the measure of each angle. Give a reason for each answer.

17. ∠1



18. ∠3

19. ∠12

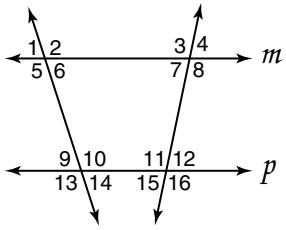
20. ∠11

NAME _____ DATE _____ PERIOD _____

4–3 Skills Practice

Transversals and Corresponding Angles

In the figure, m ∥ p. Name all angles congruent to the given angle. Give a reason for each answer.



1. $\angle 1$

2. $\angle 7$

3. $\angle 13$

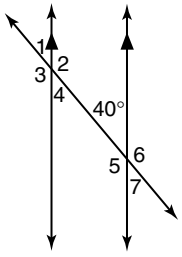
4. $\angle 8$

5. $\angle 9$

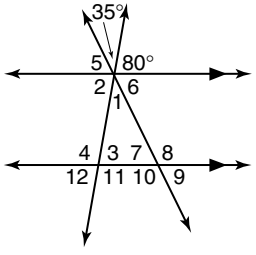
6. $\angle 16$

Find the measure of each numbered angle.

7.



8.



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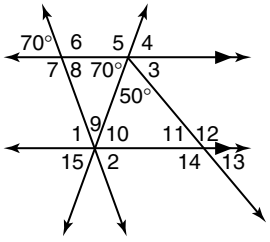

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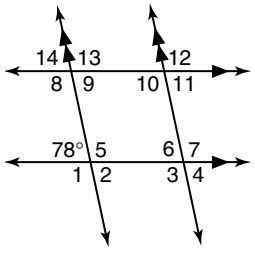


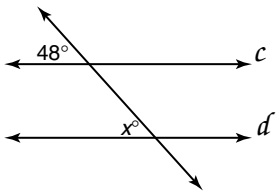
NAME _____ DATE _____ PERIOD _____

Skills Practice

Proving Lines Parallel

Find x so that c ∥ d.

1.



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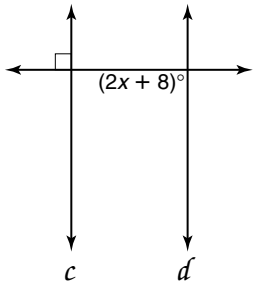

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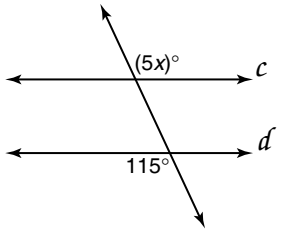

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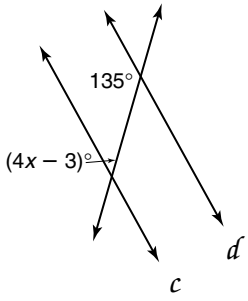

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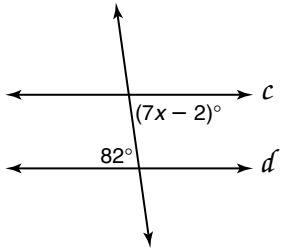

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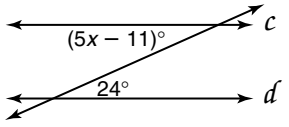

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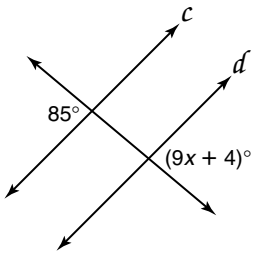

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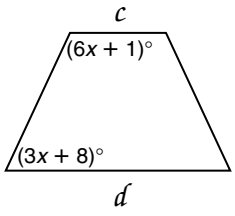

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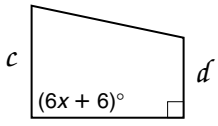
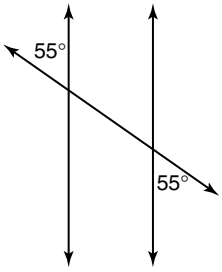


Name the pairs of parallel lines or segments.

10.



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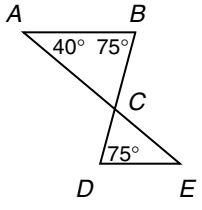

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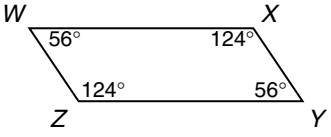

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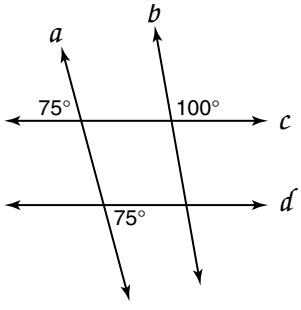

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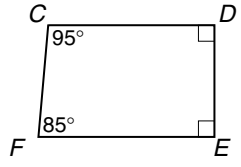

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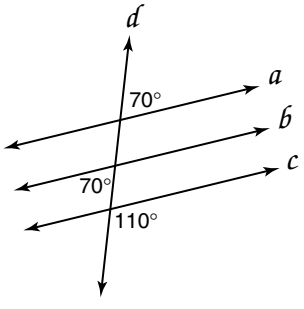


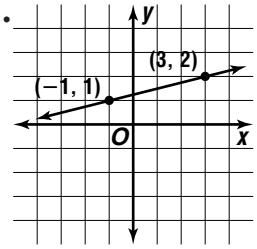
NAME _____ DATE _____ PERIOD _____

Skills Practice

Slope

Find the slope of each line.

1.



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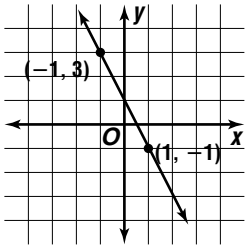

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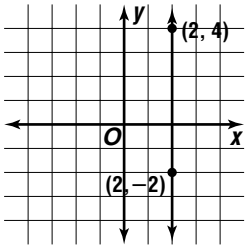

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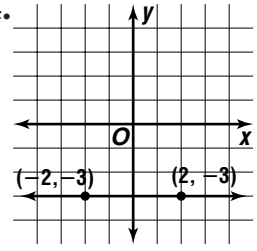

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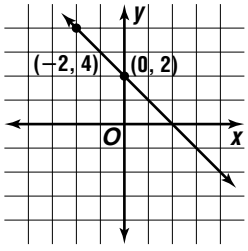

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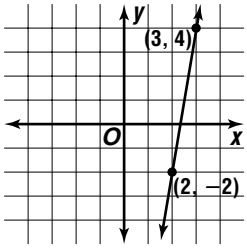

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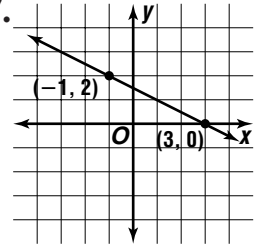

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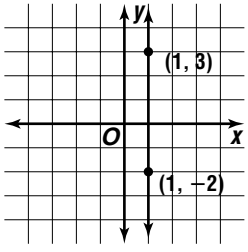

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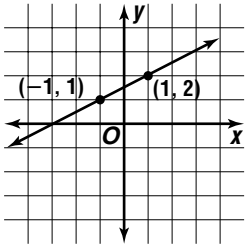


Given each set of points, determine if $\overleftrightarrow{AB}$ ***and*** $\overleftrightarrow{CD}$ ***are*** **parallel, perpendicular, *or* neither.**

10. $A(1, 1), B(-2, 3), C(4, -1), D(6, 2)$

11. $A(0, 5), B(5, 0), C(3, 2), D(4, 1)$

12. $A(-2, 3), B(4, 5), C(0, 3), D(1, 0)$

13. $A(0, 0), B(4, 5), C(0, 3), D(5, -4)$

14. $A(-1, 1), B(3, -2), C(5, 0), D(3, -7)$

15. $A(2, -5), B(5, -2), C(-3, 1), D(-4, 0)$

16. $A(2, -1), B(5, -3), C(-2, -2), D(3, 3)$

17. $A(3, 0), B(6, -3), C(4, 3), D(5, 4)$

NAME _____ DATE _____ PERIOD _____

Skills Practice

Equations of Lines

Name the slope and y-intercept of the graph of each equation.

1. $y = 3x + 2$

2. $y = -4x + 1$

3. $y = 2x + 5$

4. $y = -5x - 1$

5. $x = 2$

6. $10x + y = 7$

7. $y + 3x = -1$

8. $y = x$

9. $2x - y = 3$

10. $y = -6$

11. $-4x - y = 8$

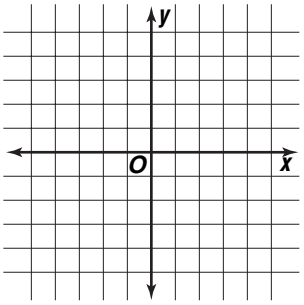
12. $2x + 2y = 14$

13. $9x - 3y = 12$

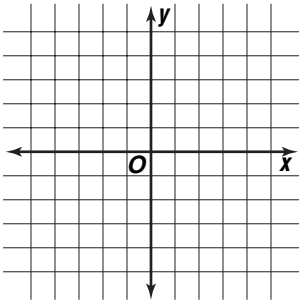
14. $5x + 10y = 20$

Graph each equation using the slope and y-intercept.

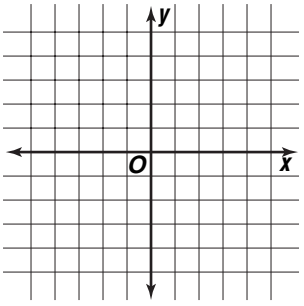
15. $y = 2x + 1$



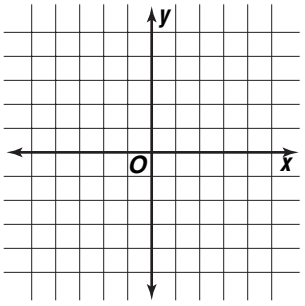
16. $y = x - 3$



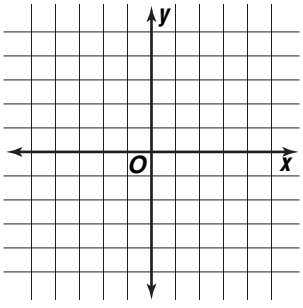
17. $x - y = 4$



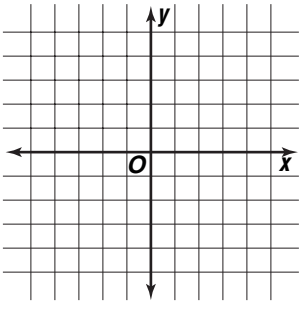
18. $3x - y = 2$



19. $2x + y = -1$



20. $-3x - y = 2$



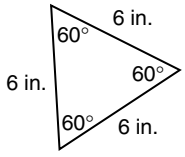
NAME _____ DATE _____ PERIOD _____

5–1 Skills Practice

Classifying Triangles

Classify each triangle by its angles and by its sides.

1.



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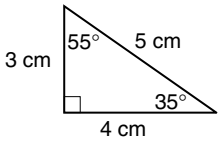

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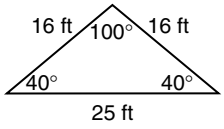

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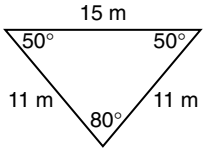
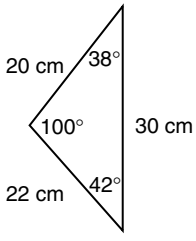


5.



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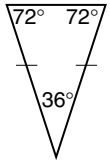

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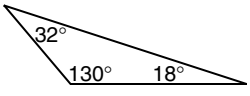

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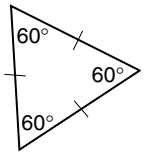

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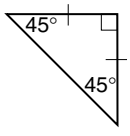


***Make a sketch of each triangle. If it is not possible to sketch the figure, write* not possible.**

10. right scalene

11. obtuse isosceles

12. right isosceles

13. right equilateral

5–2

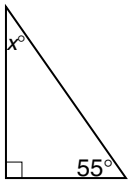
NAME _____ DATE _____ PERIOD _____

Skills Practice

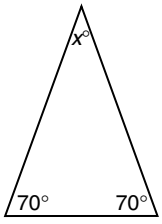
Angles of a Triangle

Find the value of each variable.

1.



2.



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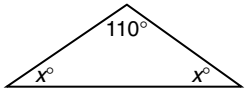

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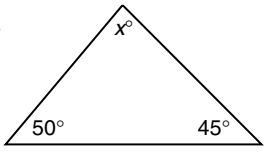

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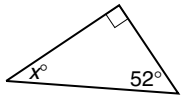

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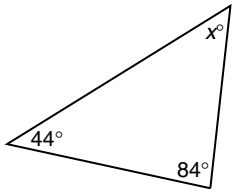

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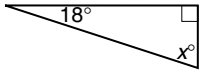

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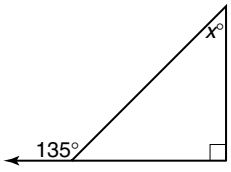

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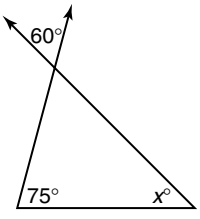

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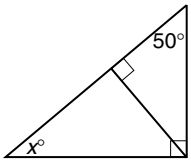

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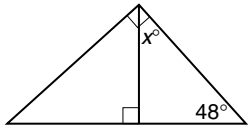

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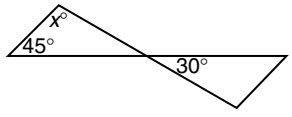
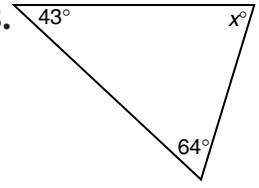


Find the measure of each angle in each triangle.

13.



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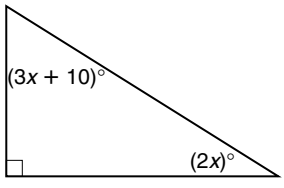
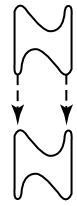


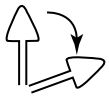
NAME _____ DATE _____ PERIOD _____

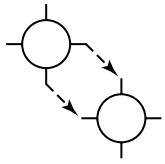
Skills Practice

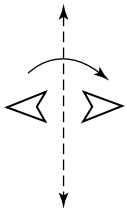
Geometry in Motion

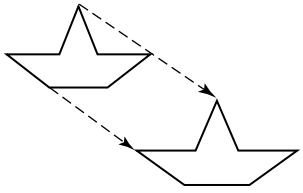
Identify each motion as a* translation*, reflection, or* rotation*.

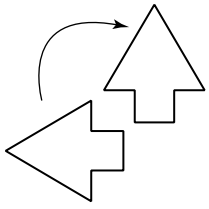
1. 

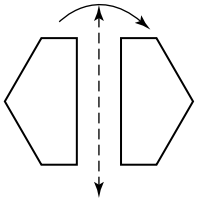
2. 

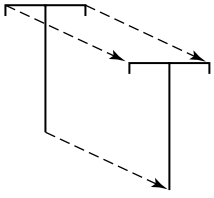
3. 

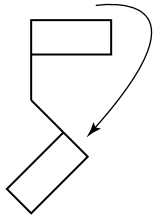
4. 

5. 

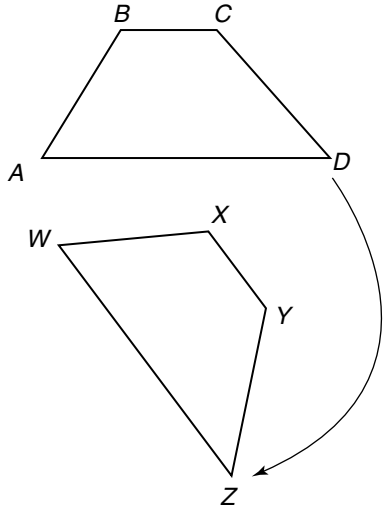
6. 

7. 

8. 

9. 

In the figure at the right, quadrilateral ABCD → quadrilateral WXYZ.



10. Which angle corresponds to $\angle D$?

11. Which side corresponds to $\overline{XY}$?

12. Name the image of point A.

13. Name the image of $\overline{AD}$.

14. Which vertex of $ABCD$ corresponds to Y?

15. Name the side that corresponds to $\overline{AB}$.

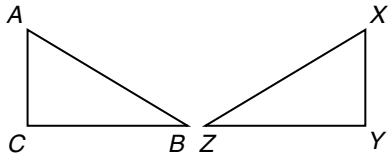
NAME _____ DATE _____ PERIOD _____

Skills Practice

Congruent Triangles

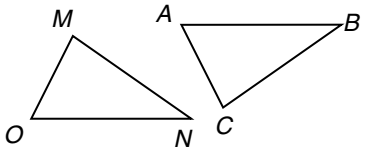
Name the congruent angles and sides for each pair of congruent triangles. Then draw arcs and slash marks to show the congruent angles and sides.

1.



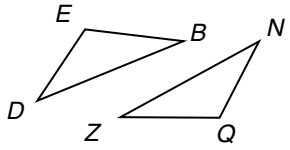
$\triangle ACE \cong \triangle XYZ$

2.



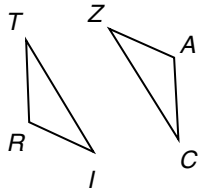
$\triangle MNO \cong \triangle CBA$

3.



$\triangle BDE \cong \triangle ZNQ$

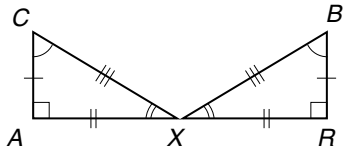
4.



$\triangle TRI \cong \triangle ZAC$

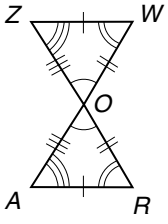
Complete each congruence statement.

5.



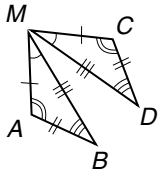
$\triangle CAX \cong \triangle$ ___?___

6.



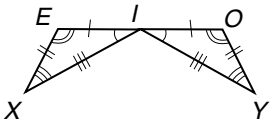
$\triangle ZWO \cong \triangle$ ___?___

7.



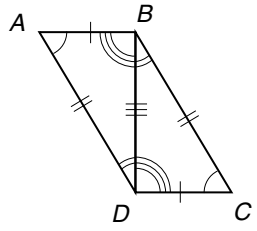
$\triangle MAB \cong \triangle$ ___?___

8.



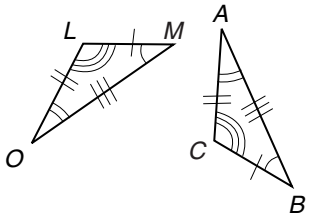
$\triangle EIX \cong \triangle$ ___?___

9.



$\triangle ABD \cong \triangle$ ___?___

10.



$\triangle LMO \cong \triangle$ ___?___

NAME _____ DATE _____ PERIOD _____

5–5 Skills Practice

SSS and SAS

Write a congruence statement for each pair of triangles represented.

1. $\overline{AC} \cong \overline{NO}$, $\overline{CL} \cong \overline{OP}$, $\angle C \cong \angle O$

2. $\overline{WX} \cong \overline{AB}$, $\overline{XZ} \cong \overline{BC}$, $\overline{WZ} \cong \overline{AC}$

3. $\overline{EG} \cong \overline{PS}$, $\overline{EH} \cong \overline{PT}$, $\angle E \cong \angle P$

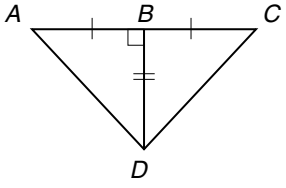
4. $\overline{HY} \cong \overline{RP}$, $\overline{EY} \cong \overline{AP}$, $\angle Y \cong \angle P$

5. $\overline{ZA} \cong \overline{QR}$, $\overline{AP} \cong \overline{RS}$, $\overline{ZP} \cong \overline{QS}$

6. $\overline{ML} \cong \overline{ZN}$, $\overline{LR} \cong \overline{NB}$, $\angle L \cong \angle N$

Determine whether each pair of triangles is congruent. If so, write a congruence statement and explain why the triangles are congruent.

7.



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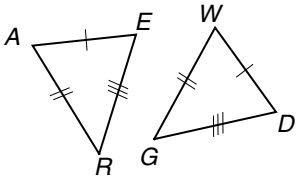

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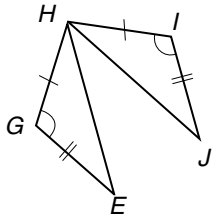

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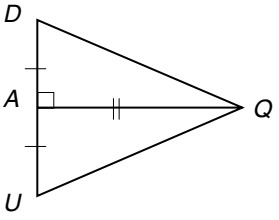

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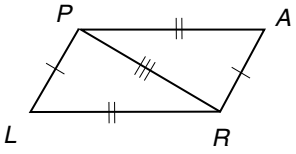

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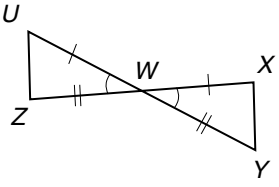


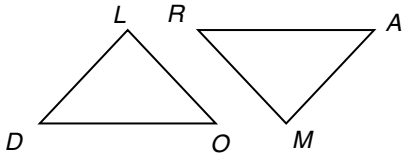
***Use the given information to determine whether the two triangles are congruent by SAS. Write* yes *or* no.**

13. $\angle L \cong \angle M$, $\overline{LD} \cong \overline{MR}$, $\overline{LO} \cong \overline{MA}$

14. $\angle L \cong \angle M$, $\overline{LD} \cong \overline{MR}$, $\angle O \cong \angle A$,

15. $\overline{LD} \cong \overline{MR}$, $\overline{LO} \cong \overline{MA}$, $\angle O \cong \angle A$,

16. $\overline{LD} \cong \overline{MR}$, $\overline{LO} \cong \overline{MA}$, $\angle DO \cong \overline{RA}$



NAME _____ DATE _____ PERIOD _____

Skills Practice

ASA and AAS

Write a congruence statement for each pair of triangles represented.

1. In $\triangle ABC$ and $\triangle ZXR$, $\angle C \cong \angle X$, $\angle A \cong \angle Z$, and $\overline{AB} \cong \overline{ZR}$.

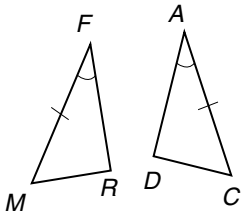
2. In $\triangle DEF$ and $\triangle BGO$, $\angle D \cong \angle B$, $\angle E \cong \angle O$, and $\overline{DE} \cong \overline{BO}$.

3. In $\triangle TRI$ and $\triangle GAN$, $\angle T \cong \angle A$, $\overline{TI} \cong \overline{AG}$, and $\overline{TR} \cong \overline{AN}$.

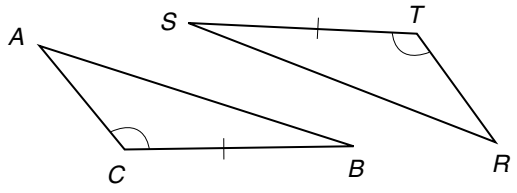
4. In $\triangle ZIP$ and $\triangle LOS$, $\angle P \cong \angle O$, $\angle I \cong \angle L$, and $\overline{PI} \cong \overline{OL}$.

Name the additional congruent parts needed so that the triangles are congruent by the postulate or theorem indicated.

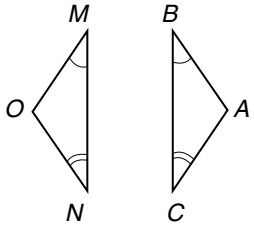
5. AAS



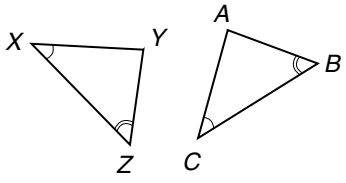
6. ASA



7. AAS

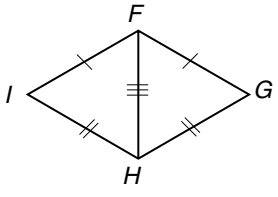


8. ASA

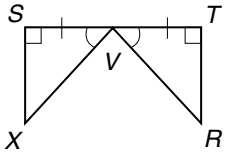


Determine whether each pair of triangles is congruent by SSS, SAS, ASA, or AAS. If it is not possible to prove that they are congruent, write **not possible.**

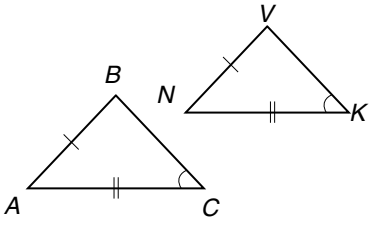
9.



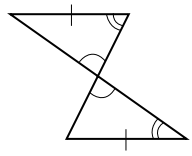
10.



11.



12.



NAME _____ DATE _____ PERIOD _____

6–1 Skills Practice

Medians

$\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ are medians of $\triangle ACE$.

1. If $AE = 24$, find AF.

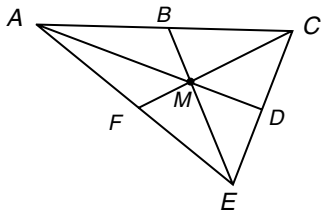
2. Find AE, if $FE = 15$.

3. What is BC if $AC = 36$?

4. Find CE, if $DE = 7$.

5. What is CD if $CE = 68$?

6. If $AF = 3$, find AE.



$\overline{TR}$, $\overline{ZX}$, and $\overline{SW}$ are medians of $\triangle TXS$.

7. If $TX = 18$, find TW.

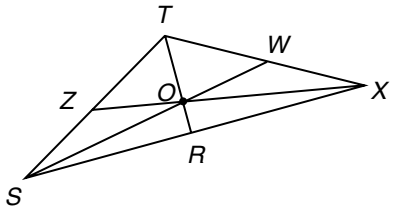
8. If $TO = 26$, find OR.

9. If $WO = 5$, find OS.

10. Find ZO if $OX = 50$.

11. What is TZ if TS is 2?

12. What is OS if OW is 9?



$\overline{RN}$, $\overline{PM}$, and $\overline{LO}$ are medians of $\triangle LNP$.

13. What is LP if RL is 4?

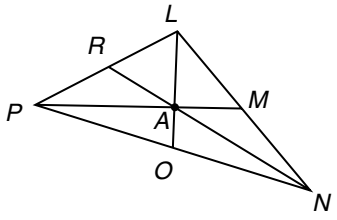
14. Find AO if $LO = 18$

15. What is RA if AN is 42?

16. If $MA = 13$, find MP.

17. Find AN if $RN = 30$.

18. If $LO = 15$, find AO.



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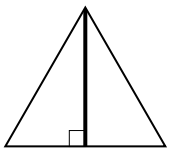
6–2 Skills Practice

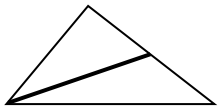
Altitudes and Perpendicular Bisectors

***Tell whether the bold segment or line is an* altitude, *a* perpendicular bisector, both, *or* neither.**

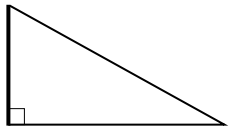
1.



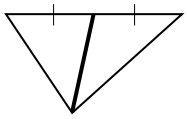
2.



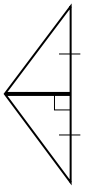
3.



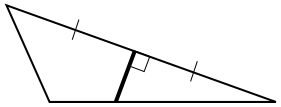
4.



5.



6.



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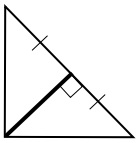
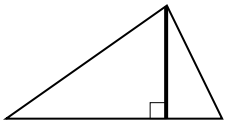


8.



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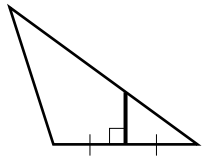
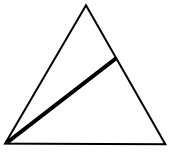


10.



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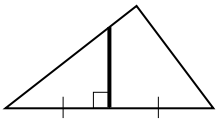

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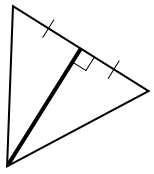
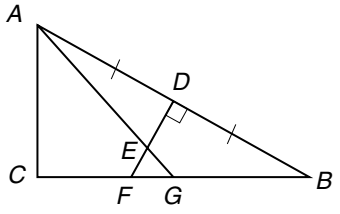


Use the figure at the right.

13. Name a segment in the triangle that is an altitude. **or**

14. Name a segment in the triangle that is a perpendicular bisector.

14. Name a segment in the triangle that is not an altitude and is not a perpendicular bisector.

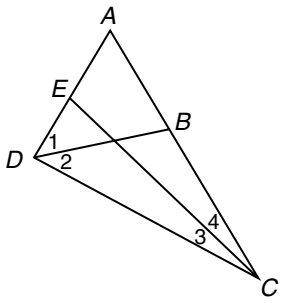


NAME _____ DATE _____ PERIOD _____

6–3 Skills Practice

Angle Bisectors of Triangles

In △ACD, $\overline{DB}$ bisects ∠ADC, and $\overline{CE}$ bisects ∠ACD.



1. If $m\angle 1 = 40$, what is $m\angle 2$?

2. Find $m\angle ACD$ if $m\angle 4 = 25$.

3. What is $m\angle 3$ if $m\angle ACD = 36$?

4. If $m\angle 1 = 45$, what is $m\angle ADC$?

5. What is $m\angle DCA$ if $m\angle DCE = 20$?

6. Find $m\angle ADB$ if $m\angle BDC = 39$.

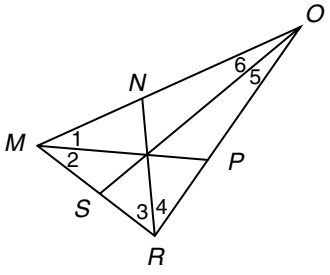
7. What is $m\angle ACD$ if $m\angle 4 = 18$?

8. Find $m\angle 2$ if $m\angle 1 = 43$.

9. If $m\angle 3 = 21$, what is $m\angle 4$?

10. What is $m\angle ECD$ if $m\angle ECA = 24$?

In △MOR, $\overline{MP}$ bisects ∠OMR, $\overline{RN}$ bisects ∠MRO, and $\overline{OS}$ bisects ∠MOR.



11. Find $m\angle 6$ if $m\angle MOR = 34$.

12. What is $m\angle OMR$ if $m\angle 1 = 23$?

13. If $m\angle 3 = 55$, what is $m\angle 4$?

14. What is $m\angle MOS$ if $m\angle MOR = 32$?

15. Find $m\angle 1$ if $m\angle 2 = 27$.

16. If $m\angle 4 = 60$, what is $m\angle MRO$?

17. What is $m\angle SOR$ if $m\angle 6 = 15$?

18. If $m\angle MRP = 112$, what is $m\angle 3$?

19. Find $m\angle OMP$ if $m\angle PMR = 30$.

20. What is $m\angle 4$ if $\angle MRO$ is a right angle?

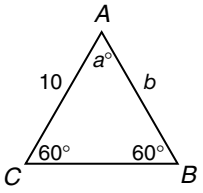
NAME _____ DATE _____ PERIOD _____

6–4 Skills Practice

Isosceles Triangles

Find the values of the variables for each triangle.

1.



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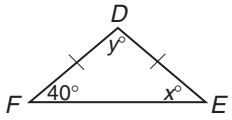

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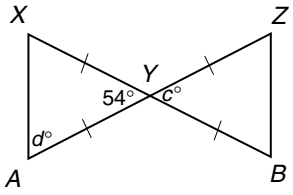

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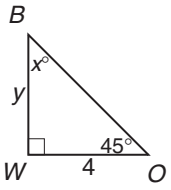

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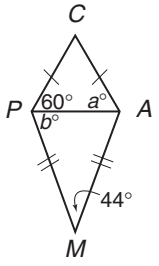

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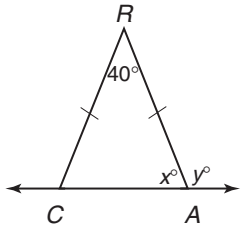

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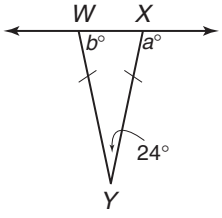

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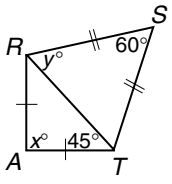

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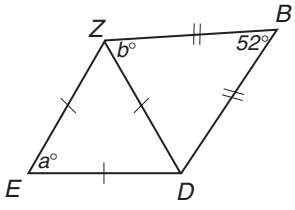

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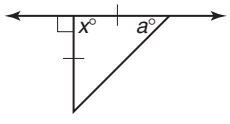

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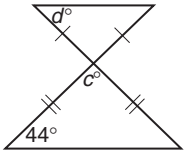

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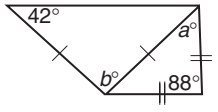


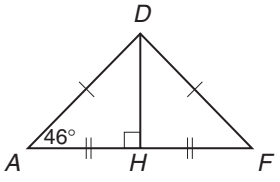
Use the figure at the right.

13. In $\triangle ADF$, if $AD = x + 6$ and $DF = 3x - 10$, what is AD?

14. In $\triangle ADH$, if $m\angle ADH = 2x - 4$, find the value of x.

15. If $AH = 5x - 1$ and $FH = 3x + 21$, what is AH?

16. In $\triangle ADF$, what is $m\angle ADF$?



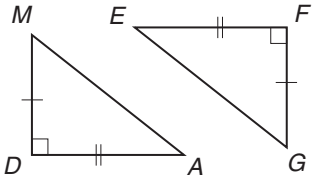
NAME _____ DATE _____ PERIOD _____

Skills Practice

Right Triangles

Determine whether each pair of right triangles is congruent by LL, HA, LA, or HL. If it is not possible to prove that they are conguent, write **not possible.**

1.



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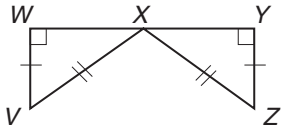

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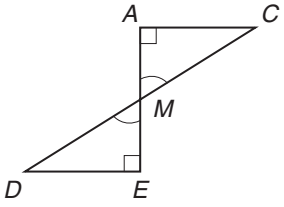

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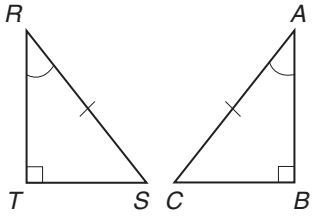

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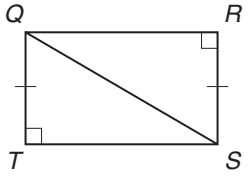

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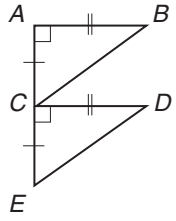

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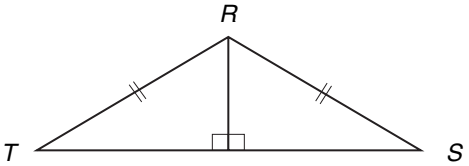

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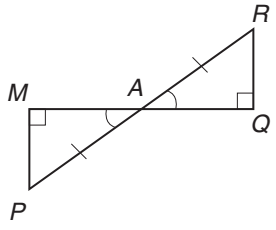

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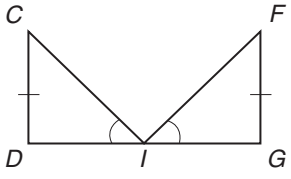

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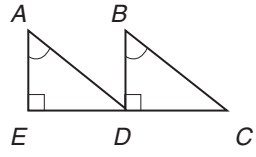


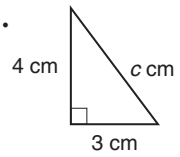
NAME _____ DATE _____ PERIOD _____

6–6 Skills Practice

The Pythagorean Theorem

Find the missing measure in each right triangle. Round to the nearest tenth, if necessary.

1.



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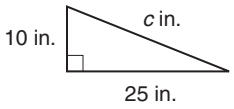

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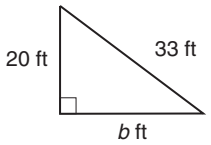

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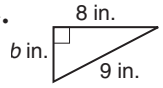

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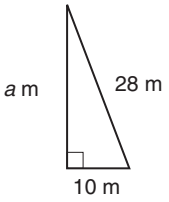

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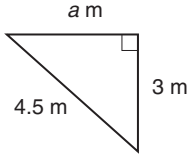
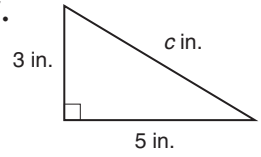
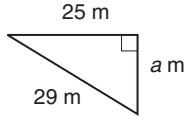


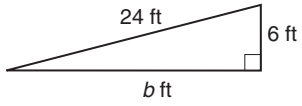
7.



8.



9.



Find each missing measure if c is the measure of the hypotenuse. Round to the nearest tenth, if necessary.

10. $a = 15$, $b = 10$, $c = ?$

11. $b = 6$, $c = 10$, $a = ?$

12. $c = 100$, $b = 60$, $a = ?$

13. $c = 16$, $a = 9$, $b = ?$

14. $a = 2$, $b = 3$, $c = ?$

15. $c = 5$, $b = 2$, $a = ?$

16. $b = 7$, $c = 15$, $a = ?$

17. $c = 30$, $a = 20$, $b = ?$

The lengths of three sides of a triangle are given. Determine whether each triangle is a right triangle.

18. 3 cm, 4 cm, 5 cm

19. 1 ft, 1 ft, 2 ft

20. 2 in., 2 in., 4 in.

21. 8 m, 15 m, 17 m

22. 5 in., 10 in., 15 in.

23. 14 cm, 48 cm, 50 cm

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Skills Practice

Distance on the Coordinate Plane

Find the distance between each pair of points. Round to the nearest tenth, if necessary.

1. $X(4, 0)$, $Y(2, 0)$

2. $C(-3, 0)$, $D(-8, 0)$

3. $F(5, 0)$, $G(-1, 0)$

4. $F(0, 8)$, $G(0, 1)$

5. $M(0, -1)$, $N(0, -6)$

6. $R(0, 6)$, $S(0, -2)$

7. $A(2, -1)$, $B(5, 3)$

8. $D(1, -5)$, $E(1, 5)$

9. $H(-3, 4)$, $I(5, 4)$

10. $G(0, 0)$, $H(6, 8)$

11. $K(0, 0)$, $M(-3, -4)$

12. $A(0, 7)$, $C(24, 0)$

13. $E(1, 1)$, $A(-1, -1)$

14. $M(0, 4)$, $Z(-2, 5)$

15. $A(-1, -2)$, $Z(2, 1)$

16. $Y(5, 6)$, $B(-5, -6)$

17. $C(2, -3)$, $X(2, 7)$

18. $D(6, 9)$, $U(9, 6)$

19. $L(5, 3)$, $M(-1, 0)$

20. $S(-2, -6)$, $T(7, 6)$

21. $H(1, -1)$, $A(-5, 4)$

22. $G(8, -9)$, $X(-1, 0)$

23. $B(-7, 4)$, $T(-10, -1)$

24. $W(4, -2)$, $N(1, 2)$

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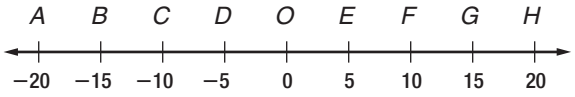
7–1 Skills Practice

Segments, Angles, and Inequalities

For Exercises 1–12, use the figure below.



Replace each ○ with <, >, or = to make a true sentence.

1. $AB \bigcirc FH$ **2.** $AD \bigcirc EH$ **3.** $AE \bigcirc HE$

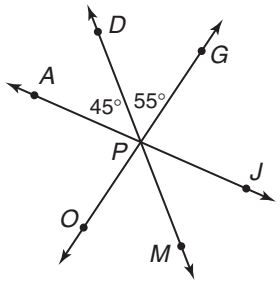
4. $AE \bigcirc DE$ **5.** $DF \bigcirc OG$ **6.** $CG \bigcirc BF$

***Determine whether each statement is* true *or* false.**

7. $AF \geq BG$ **8.** $OE \leq DF$ **9.** $CG = OH$

10. $BD \geq FG$ **11.** $OH \geq OA$ **12.** $AG \geq BH$

For Exercises 13–24, use the figure at the right.
***Lines* AJ, DM, *and* GO *intersect at* P.**



Replace each ○ with <, >, or = to make a true sentence.

13. $m\angle APD \bigcirc m\angle MPJ$ **14.** $m\angle DPG \bigcirc m\angle APD$

15. $m\angle DPG \bigcirc m\angle GPJ$ **16.** $m\angle APO \bigcirc m\angle GPJ$

17. $m\angle MPJ \bigcirc m\angle OPM$ **18.** $m\angle APO \bigcirc m\angle DPG$

***Determine if each statement is* true *or* false.**

19. $m\angle OPJ = m\angle APG$ **20.** $m\angle OPJ = m\angle GPJ$

21. $m\angle OPJ > m\angle DPG$ **22.** $m\angle APG < m\angle GPJ$

23. $m\angle DPJ = m\angle APM$ **24.** $m\angle APO = 2 \cdot m\angle APD$

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7–2 Skills Practice

Exterior Angle Theorem

Name the angles.

1. an exterior angle of $\triangle ABX$

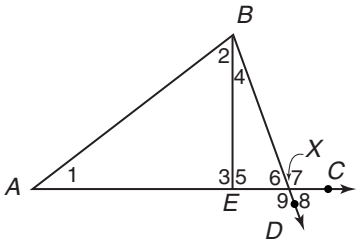
2. an exterior angle of $\triangle BEA$

3. an interior angle of $\triangle ABX$

4. an interior angle of $\triangle BEA$

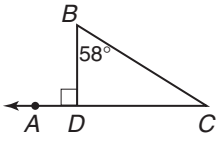
5. a remote interior angle of $\triangle ABX$ with respect to $\angle 7$

6. a remote interior angle of $\triangle BEA$ with respect to $\angle 5$

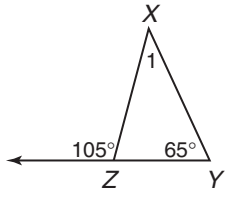


Find the measure of each angle.

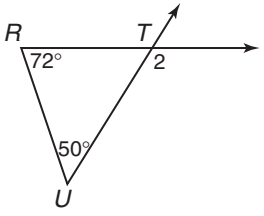
7. $\angle C$



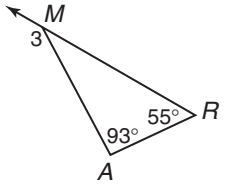
8. $\angle 1$



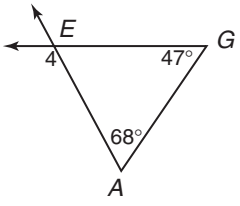
9. $\angle 2$



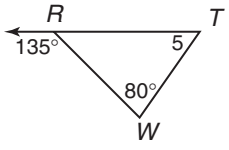
10. $\angle 3$



11. $\angle 4$



12. $\angle 5$



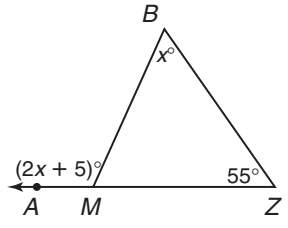
Use the figure at the right.

13. Find the value of x.

14. Find $m\angle B$.

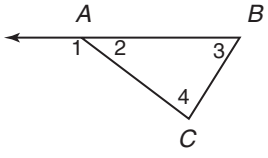
15. Find $m\angle BMA$.

16. Find $m\angle BMZ$.



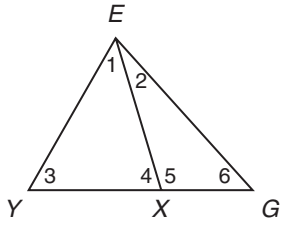
Replace each ○ with <, >, or = to make a true sentence.

17.



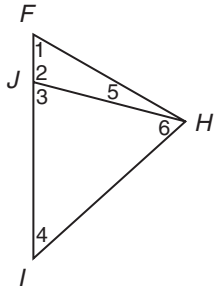
$m\angle 3 \bigcirc m\angle 1$

18.



$m\angle 5 \bigcirc m\angle 3$

19.



$m\angle 2 \bigcirc m\angle 4 + m\angle 6$

7–3

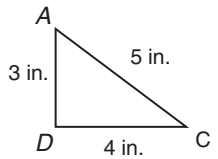
NAME _____ DATE _____ PERIOD _____

Skills Practice

Inequalities Within a Triangle

List the angles in order from least to greatest measure.

1.



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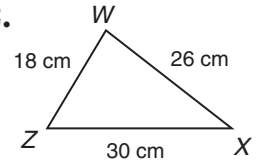

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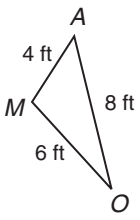

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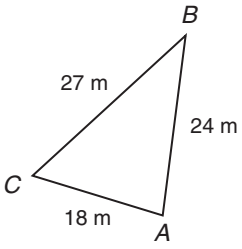

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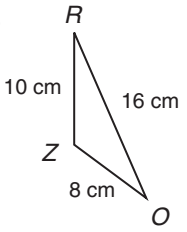

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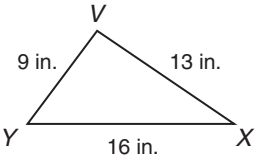
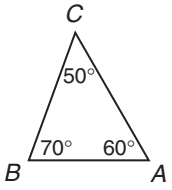


List the sides in order from least to greatest measure.

7.



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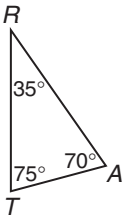

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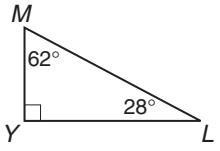
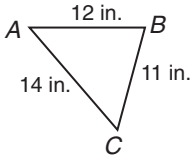


Identify the angle with the greatest measure.

10.



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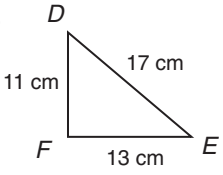

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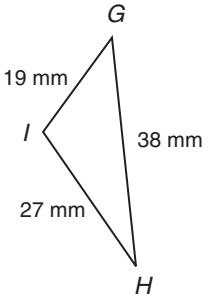
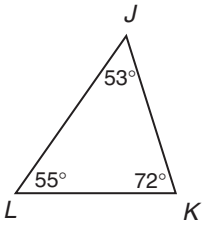


Identify the side with the greatest measure.

13.



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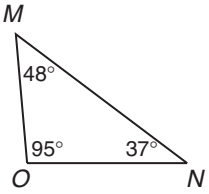

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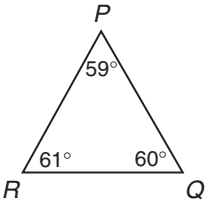


NAME _____ DATE _____ PERIOD _____

7–4 Skills Practice

Triangle Inequality Theorem

Determine if the three numbers can be measures of the sides of a triangle. Write* yes *or* no. *Explain.

1. 6, 7, 8

2. 1, 1, 2

3. 2, 4, 6

4. 5, 8, 10

5. 10, 20, 30

6. 3, 4, 5

7. 3, 5, 7

8. 6, 12, 24

9. 1, 7, 10

10. 10, 15, 26

11. 8, 12, 19

12. 4, 7, 10

Find the range of possible measures for the third side of a triangle with the measures given for two sides.

13. 7, 13

14. 20, 25

15. 1, 5

16. 32, 38

17. 50 ,70

18. 8, 20

19. 55, 10

20. 2, 10

21. 60, 70

22. 45, 70

23. 9, 19

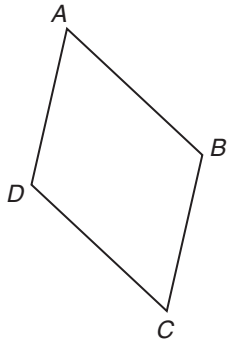
24. 100, 120

NAME _____ DATE _____ PERIOD _____

8–1 Skills Practice

Quadrilaterals

Refer to quadrilaterals ABCD and MNOZ.



Exercises 1 - 5

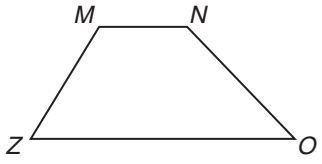
1. Name the side opposite $\overline{BC}$.

2. Name a side that is consecutive with $\overline{AB}$.

3. Name a pair of consecutive vertices in $ABCD$.

4. Name the vertex opposite B.

5. Name the two diagonals in $ABCD$.



Exercises 6 - 10

6. Name a pair of consecutive angles in $MNOZ$.

7. Name the vertex opposite O.

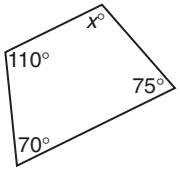
8. Name the side opposite $\overline{MZ}$.

9. Name a side that is consecutive with $\overline{MN}$.

10. Name the diagonals in $MNOZ$.

Find the missing measure(s) in each figure.

11.



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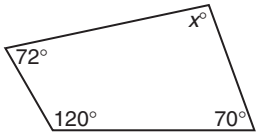

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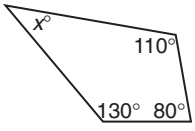

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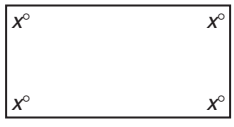

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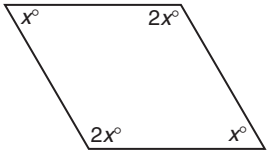

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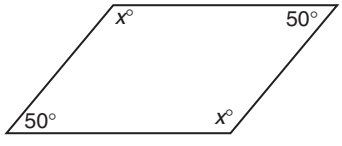


NAME _____ DATE _____ PERIOD _____

8–2 Skills Practice

Parallelograms

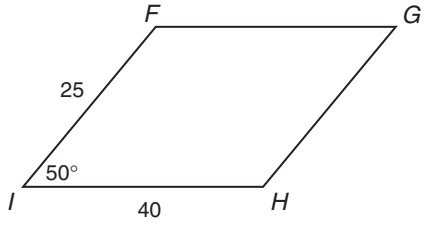
Find each measure.

1. $m\angle H$

2. $m\angle G$

3. GH

4. FG



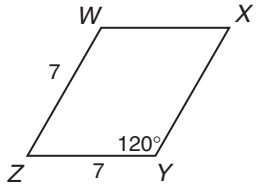
Find each measure.

5. $m\angle Z$

6. $m\angle W$

7. XY

8. WX



In the figure, TQ = 42 and SA = 14. Find each measure.

9. TA

10. $m\angle QST$

11. SR

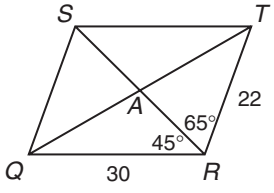
12. $m\angle STR$

13. SQ

14. ST

15. AQ

16. AR



17. In a parallelogram, the measure of one side is 38. Find the measure of the opposite side.

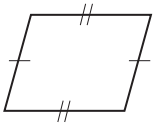
18. The measure of one angle of a parallelogram is 45. Determine the measures of the other three angles.

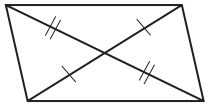
NAME _____ DATE _____ PERIOD _____

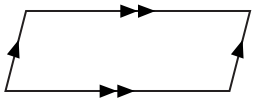
8–3 Skills Practice

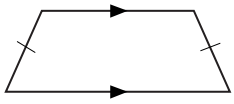
Tests for Parallelograms

Determine whether each quadrilateral is a parallelogram. Write* yes *or* no*. If yes, give a reason for your answer.

1. 

2. 

3. 

4. 

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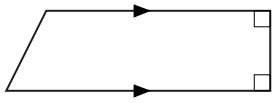
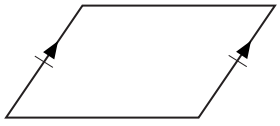
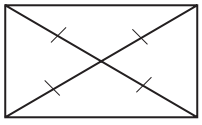
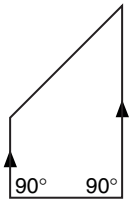
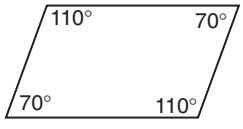
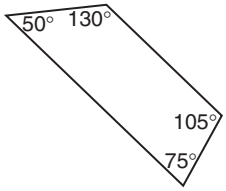
6. 

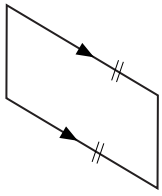
7. 

8. 

9. 

10. 

11. 

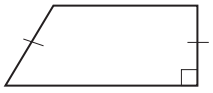
12. 

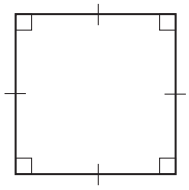
NAME _____ DATE _____ PERIOD _____

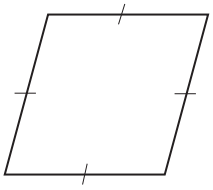
8–4 Skills Practice

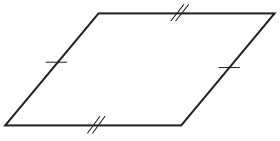
Rectangles, Rhombi, and Squares

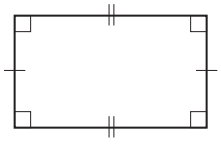
***Identify each parallelogram as a* rectangle, rhombus, square, *or* none of these.**

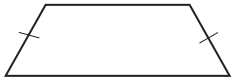
1. 

2. 

3. 

4. 

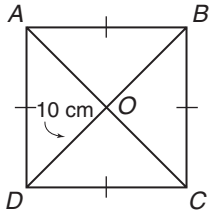
5. 

6. 

Find each measure.

7. BO

8. OC



Exercises 7 - 14

9. AC

10. BD

11. $m\angle AOB$

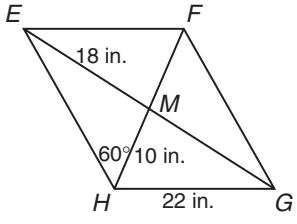
12. $m\angle ABC$

13. $m\angle ADB$

14. $m\angle DCA$

15. MG

16. HF



Exercises 15 - 22

17. $m\angle EHG$

18. $m\angle FEH$

19. $m\angle EMF$

20. FG

21. EF

22. $m\angle FGE$

8–5

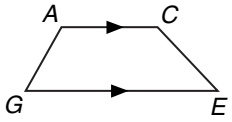
NAME _____ DATE _____ PERIOD _____

Skills Practice

Trapezoids

For each trapezoid, name the bases, the legs, and the base angles.

1.



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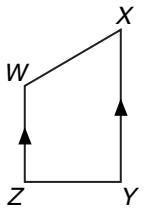

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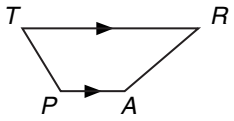
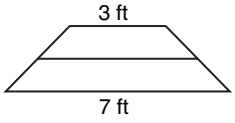


Find the length of the median in each trapezoid.

4.



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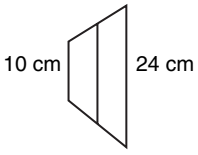

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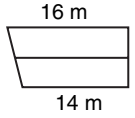

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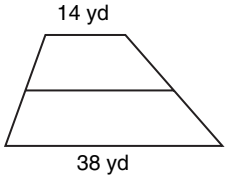

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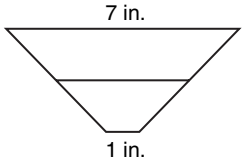
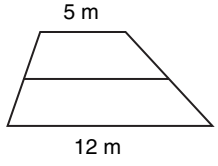
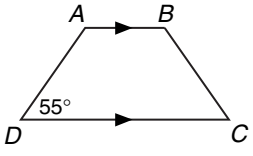


9.



Find the missing angle measures in each isosceles trapezoid.

10.



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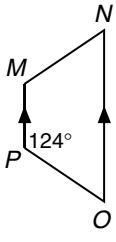

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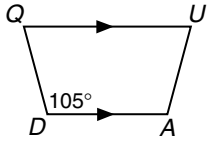

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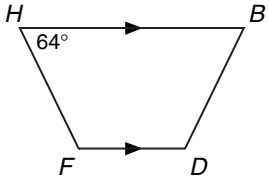

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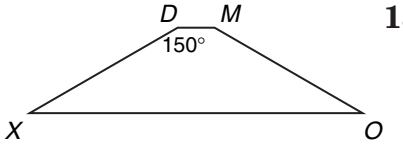

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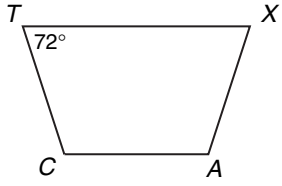


NAME _____ DATE _____ PERIOD _____

Skills Practice

Using Ratios and Proportions

Write each ratio in simplest form.

1. $\frac{15}{20}$ **2.** $\frac{7}{49}$ **3.** $\frac{10}{15}$

4. $\frac{28}{35}$ **5.** $\frac{11}{22}$ **6.** $\frac{20}{25}$

7. $\frac{3}{15}$ **8.** $\frac{18}{81}$ **9.** $\frac{36}{27}$

10. $\frac{55}{33}$ **11.** $\frac{12}{2}$ **12.** $\frac{40}{25}$

13. 15 feet to 25 feet

14. 48 centimeters to 15 centimeters

15. 45 meters to 60 meters

16. 14 inches to 24 inches

17. 12 inches to 3 feet

18. 80 centimeters to 2 meters

19. 4 feet to 10 yards

20. 8 quarts to 5 gallons

Solve each proportion.

21. $\frac{3}{8} = \frac{6}{x}$ **22.** $\frac{24}{18} = \frac{x}{3}$ **23.** $\frac{7}{12} = \frac{14}{x}$

24. $\frac{8}{28} = \frac{x}{21}$ **25.** $\frac{4}{8} = \frac{x}{12}$ **26.** $\frac{32}{6} = \frac{16}{x}$

27. $\frac{9}{5} = \frac{x}{20}$ **28.** $\frac{5}{x} = \frac{35}{70}$ **29.** $\frac{22}{18} = \frac{x}{27}$

30. $\frac{2}{x} = \frac{14}{21}$ **31.** $\frac{8}{x} = \frac{56}{7}$ **32.** $\frac{x}{5} = \frac{6}{30}$

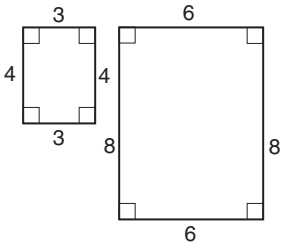
NAME _____ DATE _____ PERIOD _____

9–2 Skills Practice

Similar Polygons

Determine whether each pair of polygons is similar. Justify your answer.

1.



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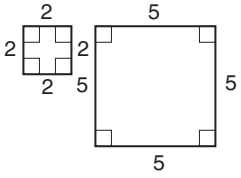
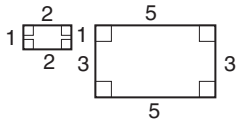


3.



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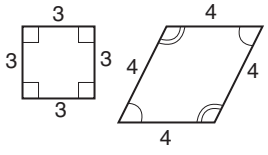

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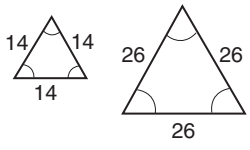

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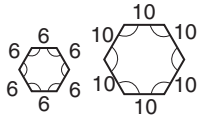
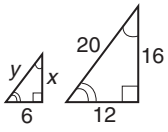


If each pair of polygons is similar, find the values of* x *and* y*.

7.



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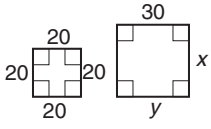

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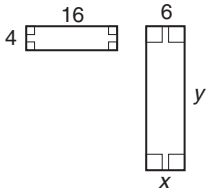

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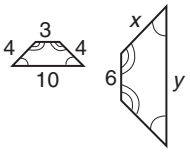

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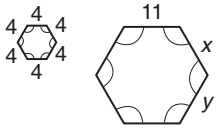

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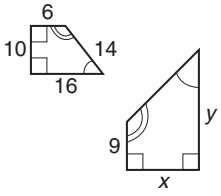


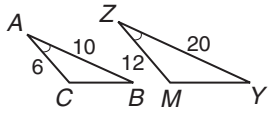
NAME _____ DATE _____ PERIOD _____

9–3 Skills Practice

Similar Triangles

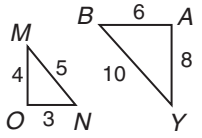
Determine whether each pair of triangles is similar. If so, tell which similarity test is used and complete the statement.

1.



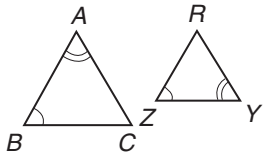
$\triangle ABC \sim \triangle$?

2.



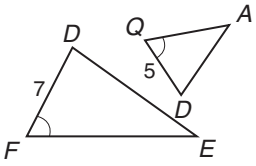
$\triangle MNO \sim \triangle$?

3.



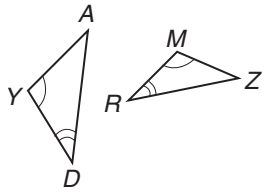
$\triangle BAC \sim \triangle$?

4.



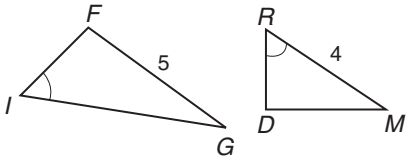
$\triangle DEF \sim \triangle$?

5.



$\triangle DYA \sim \triangle$?

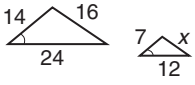
6.



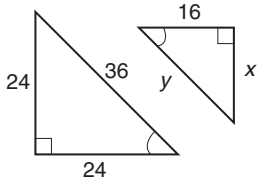
$\triangle FGI \sim \triangle$?

Find the value of each variable.

7.



8.



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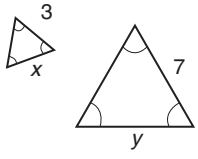

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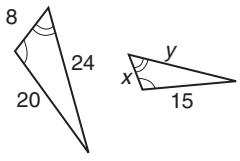

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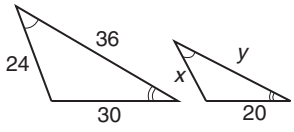
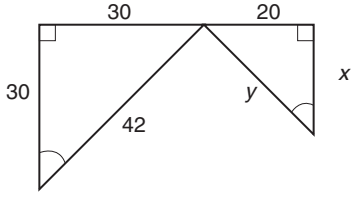


12.



NAME _____ DATE _____ PERIOD _____

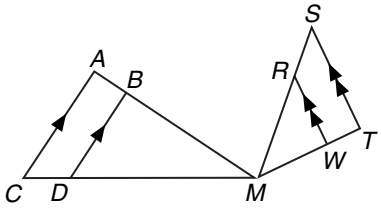
9–4 Skills Practice

Proportional Parts and Triangles

Complete each proportion.

1. $\frac{MB}{BA} = \frac{MD}{?}$

2. $\frac{MR}{RS} = \frac{MW}{?}$



3. $\frac{BD}{AC} = \frac{MD}{?}$

4. $\frac{MB}{MA} = \frac{?}{MC}$

5. $\frac{CD}{DM} = \frac{AB}{?}$

6. $\frac{MS}{RM} = \frac{MT}{?}$

7. $\frac{ST}{RW} = \frac{SM}{?}$

8. $\frac{MW}{WT} = \frac{?}{RS}$

9. $\frac{RW}{ST} = \frac{MW}{?}$

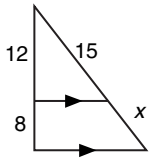
10. $\frac{TW}{WM} = \frac{SR}{?}$

11. $\frac{CM}{MD} = \frac{?}{BM}$

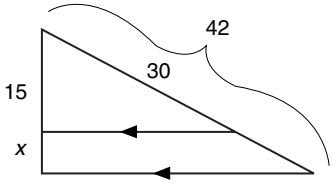
12. $\frac{SM}{SR} = \frac{TM}{?}$

Find the value of x.

13.



14.



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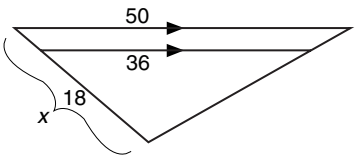

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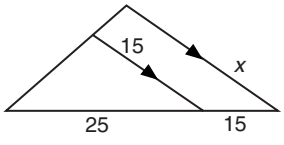

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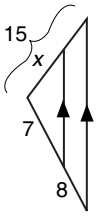
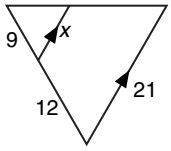


18.



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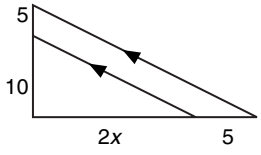

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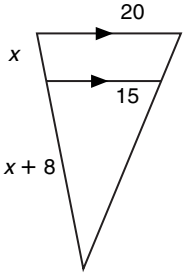

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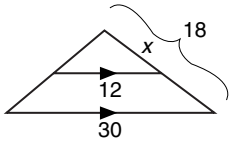


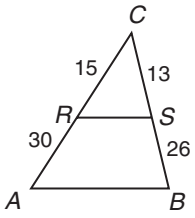
NAME _____ DATE _____ PERIOD _____

9–5 Skills Practice

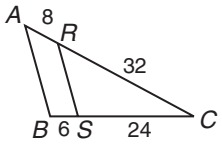
Triangles and Parallel Lines

In each figure, determine whether $\overline{AB} \parallel \overline{RS}$.

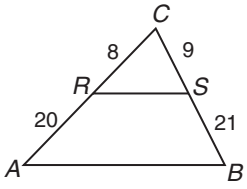
1.



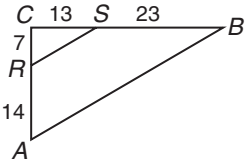
2.



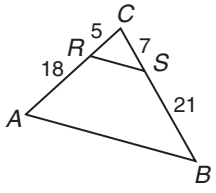
3.



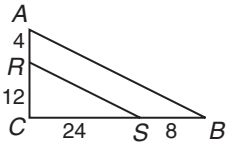
4.



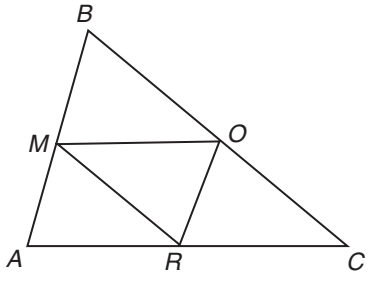
5.



6.



M, O, and R are the midpoints of the sides of $\triangle ABC$. Complete each statement.



7. $\overline{OR} \parallel$ ___?___

8. $\overline{BC} \parallel$ ___?___

9. If $MO = 15$, then $AC =$ ___?___

10. If $BC = 62$, then $MR =$ ___?___

11. If $m\angle BMO = 75$, then $m\angle BAC =$ ___?___

12. If $m\angle BCA = 52$, then $m\angle BOM =$ ___?___

13. $\overline{AC} \parallel$ ___?___

14. If $BM = 28$, then $AM =$ ___?___

15. If $AB = 50$, then $OR =$ ___?___

16. If $BC = 74$, then $BO =$ ___?___

17. If $m\angle COR = 60$, then $m\angle CBA =$ ___?___

18. If $BO = 19$, then $MR =$ ___?___

NAME _____ DATE _____ PERIOD _____

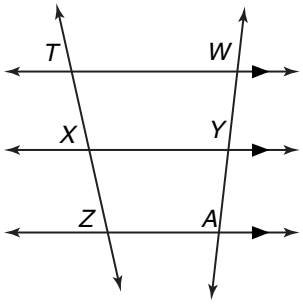
9–6 Skills Practice

Proportional Parts and Parallel Lines

Complete each proportion.

1. $\frac{TX}{XZ} = \frac{?}{YA}$

2. $\frac{WY}{WA} = \frac{TX}{?}$



3. $\frac{YA}{WY} = \frac{XZ}{?}$

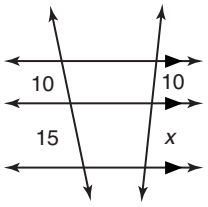
4. $\frac{WA}{?} = \frac{TZ}{TX}$

5. $\frac{AY}{?} = \frac{XZ}{TX}$

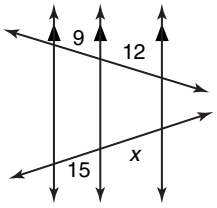
6. $\frac{TZ}{?} = \frac{WA}{WY}$

Find the value of x.

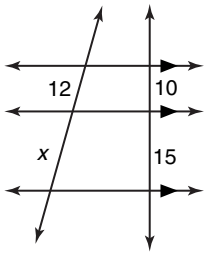
7.



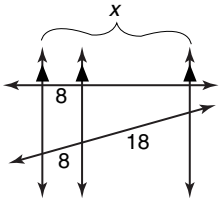
8.



9.



10.



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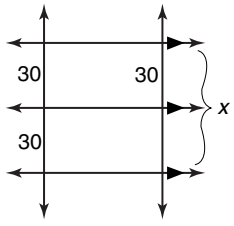

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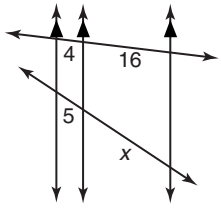

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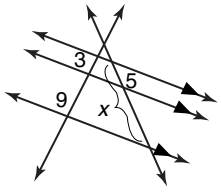

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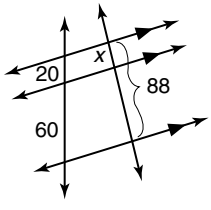

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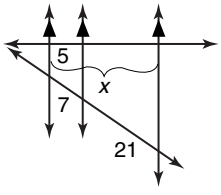


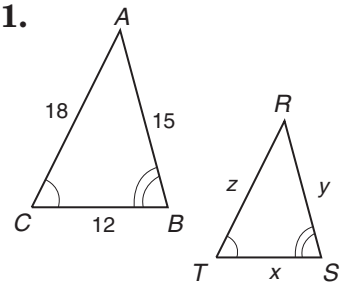
NAME _____ DATE _____ PERIOD _____

9–7 Skills Practice

Perimeters and Similarity

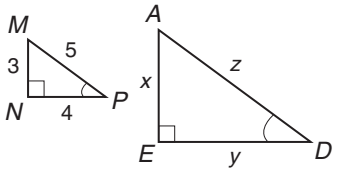
Find the value of each variable for each pair of similar triangles.

1.



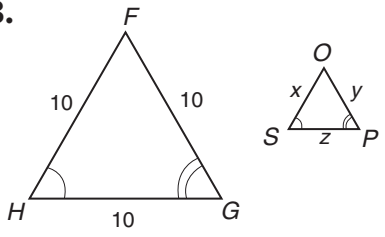
Perimeter of $\triangle RST = 30$

2.



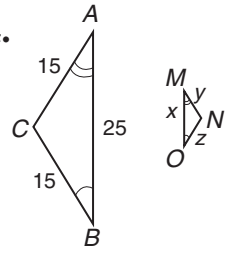
Perimeter of $\triangle ADE = 24$

3.



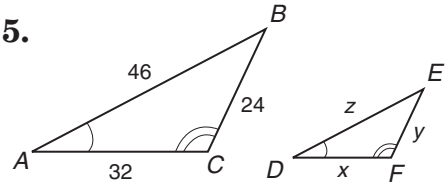
Perimeter of $\triangle OPS = 9$

4.



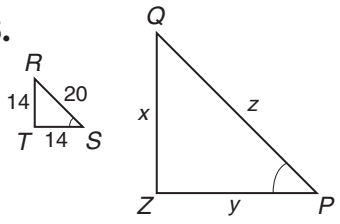
Perimeter of $\triangle MNO = 11$

5.



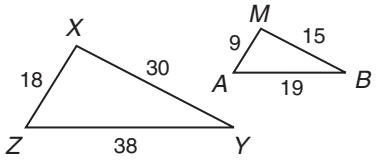
Perimeter of $\triangle DEF = 51$

6.

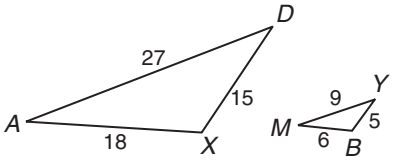


Perimeter of $\triangle QPZ = 168$

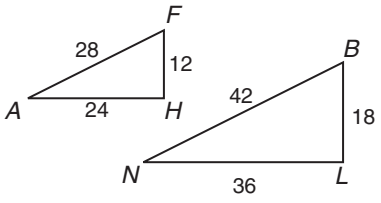
Determine the scale factor for each pair of similar triangles.



7. $\triangle XYZ$ to $\triangle MBA$



8. $\triangle ADX$ to $\triangle MYB$



9. $\triangle FHA$ to $\triangle BLN$

10. $\triangle MBA$ to $\triangle XYZ$

11. $\triangle MYB$ to $\triangle ADX$

12. $\triangle BLN$ to $\triangle FHA$

13. The perimeter of $\triangle BDE$ is 72 feet. If $\triangle BDE \sim \triangle FMR$ and the scale factor of $\triangle BDE$ to $\triangle FMR$ is $\frac{4}{5}$, find the perimeter of $\triangle FMR$.

10–1

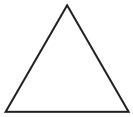
NAME _____ DATE _____ PERIOD _____

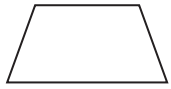
Skills Practice

Naming Polygons

Identify each polygon by its sides. Then determine whether it appears to be* regular *or* not regular. *If not regular, explain why.

1. 

2. 

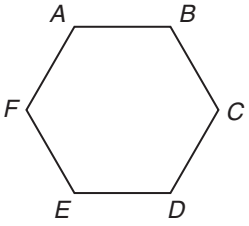
3. 

Name each part of hexagon ABCDEF.

4. two consecutive vertices

5. two diagonals

6. all nonconsecutive sides of $\overline{AB}$

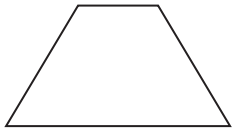


7. any three consecutive sides

8. any four consecutive vertices

***Classify each polygon as* convex *or* concave.**

9. 

10. 

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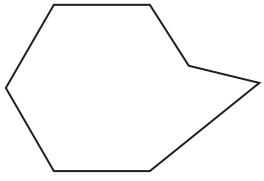
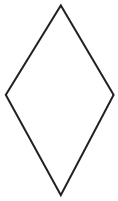
12. 

13. 

14. 

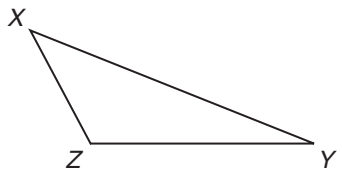
NAME _____ DATE _____ PERIOD _____

Skills Practice

Diagonals and Angle Measure

Find the sum of the measures of the interior angles in each figure.

1.



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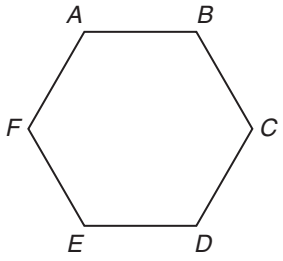

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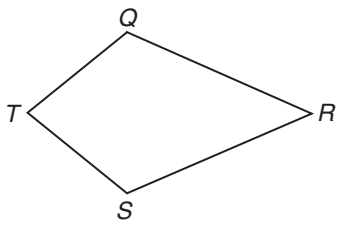

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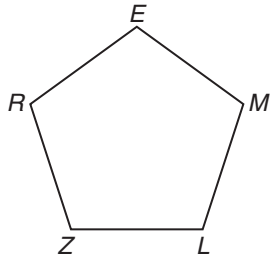

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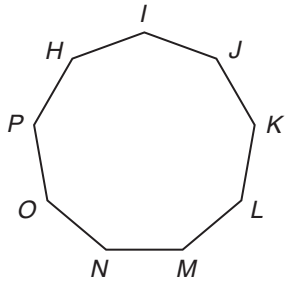
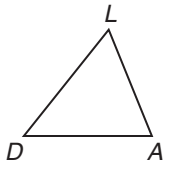


6.



Find the measure of one interior angle and one exterior angle of each regular polygon. If necessary, round to the nearest degree.

7. triangle

8. octagon

9. decagon

10. nonagon

11. quadrilateral

12. hexagon

13. The sum of the measures of three interior angles of a quadrilateral is 245. What is the measure of the fourth interior angle?

14. The sum of the measures of six exterior angles of a heptagon is 310. What is the measure of the seventh exterior angle?

15. The sum of the measures of seven interior angles of an octagon is 1000. What is the measure of the eighth interior angle?

16. The sum of the measures of nine exterior angles of a decagon is 325. What is the measure of the tenth exterior angle?

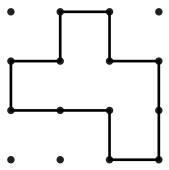
10–3

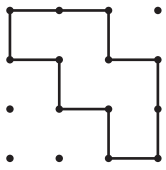
NAME _____ DATE _____ PERIOD _____

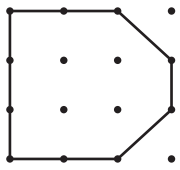
Skills Practice

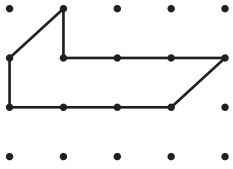
Areas of Polygons

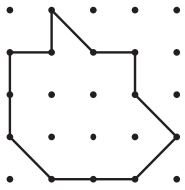
Find the area of each polygon in square units.

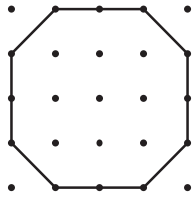
1. 

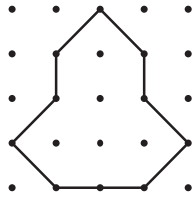
2. 

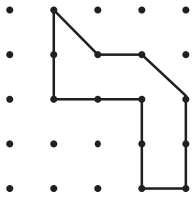
3. 

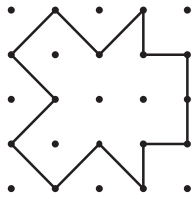
4. 

5. 

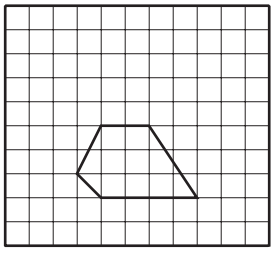
6. 

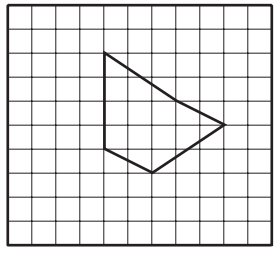
7. 

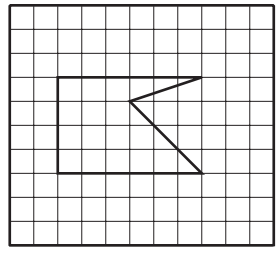
8. 

9. 

Estimate the area of each polygon in square units.

10. 

11. 

12. 

13. Sketch two polygons that both have a perimeter of 20 units, but that have different areas.

14. Sketch a pentagon with an area of 20 square units.

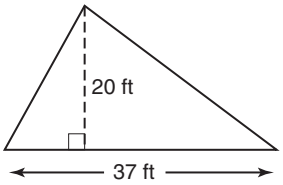
NAME _____ DATE _____ PERIOD _____

10–4 Skills Practice

Areas of Triangles and Trapezoids

Find the area of each triangle or trapezoid.

1.



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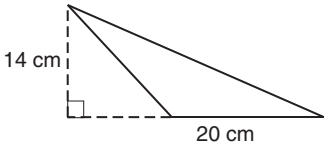

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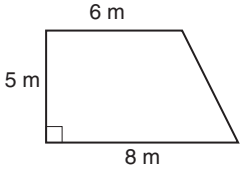

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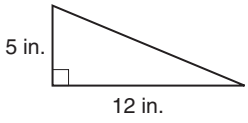

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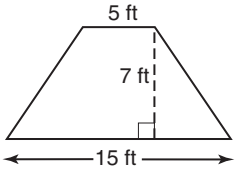

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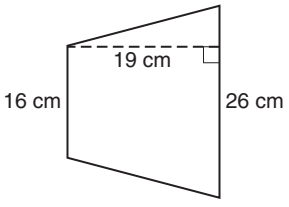

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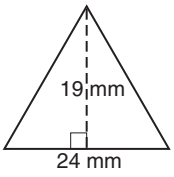

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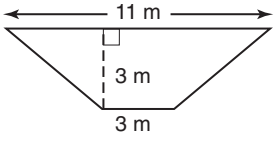

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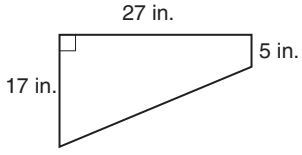

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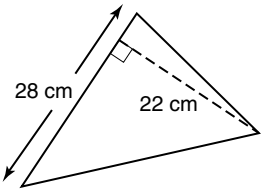

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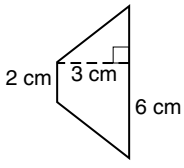

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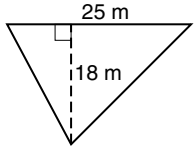


13. Find the area of a trapezoid whose altitude measures 8 feet and whose bases are 9 feet and 21 feet long.

14. Find the area of a triangle whose base measures 17 inches and whose altitude is 10 inches.

15. Find the area of a trapezoid whose altitude measures 77 meters and whose bases are 200 meters and 300 meters long.

16. The area of a triangle is 500 square feet. The height of the altitude is 25 feet. What is the length of the base?

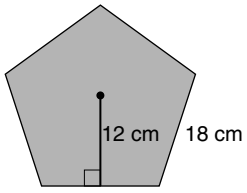
NAME _____ DATE _____ PERIOD _____

10–5 Skills Practice

Areas of Regular Polygons

Find the area of each regular polygon.

1.



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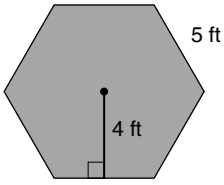

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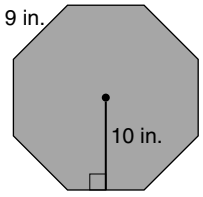

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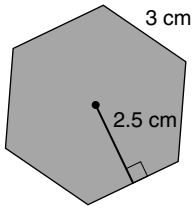
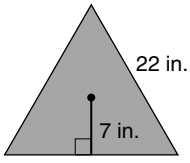


5.



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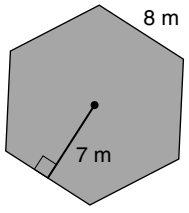
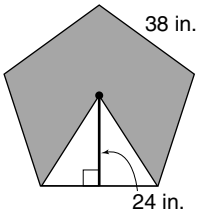


Find the area of the shaded region in each regular polygon.

7.



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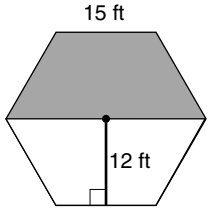

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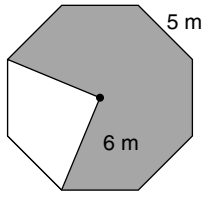

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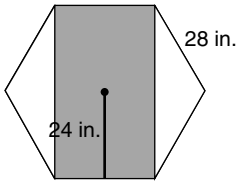

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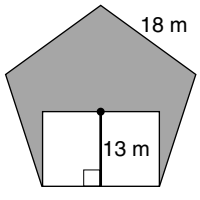

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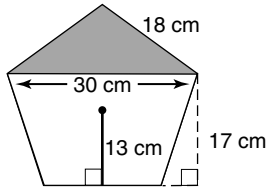


NAME _____ DATE _____ PERIOD _____

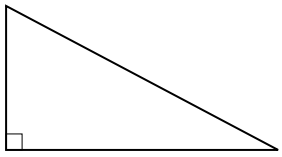
10–6 Skills Practice

Symmetry

***Determine whether each figure has line symmetry. If it does, draw all lines of symmetry. If not, write* no.**

1.

2.



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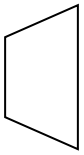

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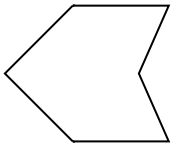

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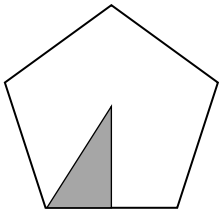

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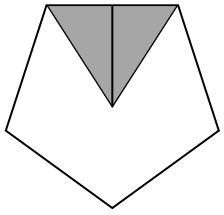
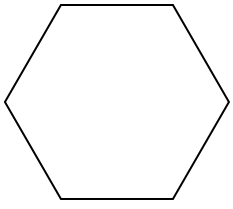


***Determine whether each figure has rotational symmetry. Write* yes *or* no.**

7.



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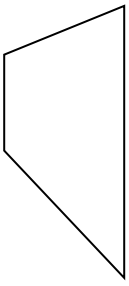

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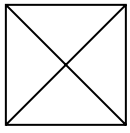

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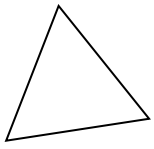

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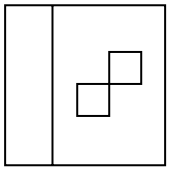

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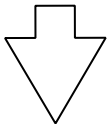


10–7

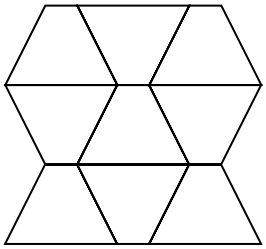
NAME _____ DATE _____ PERIOD _____

Skills Practice

Tessellations

Identify the figures used to create each tessellation. Then identify the tessellation as* regular*, semi–regular, or* neither*.

1.



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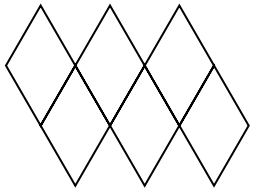

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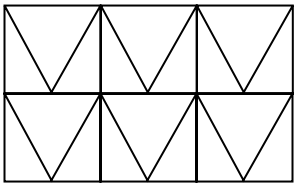

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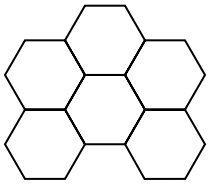

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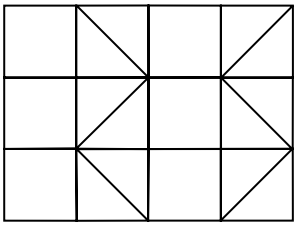

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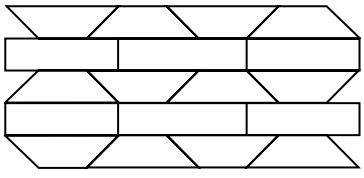

Create a tessellation using the given polygons.

7. right triangles

8. equilateral triangles and rhombi

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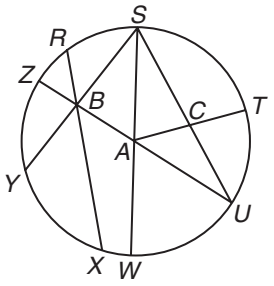
11–1 Skills Practice

Parts of a Circle

***Use ⊙A at the right to determine whether each statement is* true *or* false.**



1. $\overline{AT}$ is a radius of $\odot A$.

2. $\overline{RB}$ is a chord of $\odot A$.

3. $ZU = 2(ZA)$

4. $SA = SW$

5. $AT = BX$

6. $\overline{SW}$ is a diameter of $\odot A$.

7. $\overline{SW}$ is a chord of $\odot A$.

8. $AT = AZ$

9. $\overline{AT}$ is a chord of $\odot A$.

10. $SU = RX$

11. $SA = AU$

12. $\overline{SY}$ is a chord of $\odot A$.

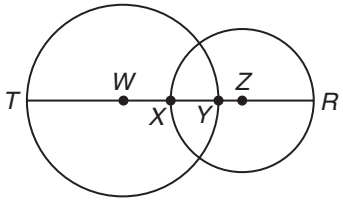
13. $SC = SA$

14. $\overline{ZU}$ is a chord of $\odot A$.

15. $\overline{ZU}$ is a radius of $\odot A$.

16. $\overline{BU}$ is a chord of $\odot A$.

Circle W has a radius of 15 units, and ⊙Z has a radius of 10 units.



17. If $XY = 7$, find YZ.

18. If $XY = 7$, find WX.

19. If $XY = 7$, find TX.

20. If $XY = 7$, find WR.

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11–2 Skills Practice

Arcs and Central Angles

Find each measure in ⊙C if m∠ACB = 80, $m\overset{\frown}{AF}$ = 45, and $\overline{AE}$ and $\overline{FD}$ are diameters.

1. $m\angle ACF$

2. $m\overset{\frown}{AB}$

3. $m\angle FCE$

4. $m\overset{\frown}{EF}$

5. $m\overset{\frown}{ABE}$

6. $m\angle BCE$

7. $m\overset{\frown}{AFE}$

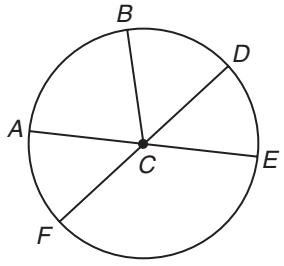
8. $m\angle DCE$

9. $m\overset{\frown}{DE}$

10. $m\angle BCD$

11. $m\overset{\frown}{BAE}$

12. $m\overset{\frown}{ABF}$



In ⊙A, $\overline{BD}$ is a diameter, m∠BAE = 85, and m∠CAD = 120. Determine whether each statement is* true *or* false.

13. $m\angle BAC = 60$

14. $m\overset{\frown}{CD} = m\angle CAD$

15. $\angle ABE$ is a central angle.

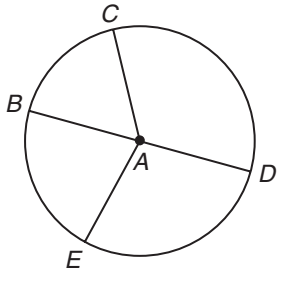
16. $m\angle BAC = m\angle DAE$

17. $m\overset{\frown}{CED} = 220$

18. $m\overset{\frown}{BCD} = 180$

19. $m\overset{\frown}{CE} = 145$

20. $m\angle DAE = m\overset{\frown}{DE}$



Q is the center of two circles with radii $\overline{QD}$ and $\overline{QE}$. If m∠AQE = 90 and $m\overset{\frown}{RE}$ = 115, find each measure.

21. $m\overset{\frown}{AE}$

22. $m\angle RQE$

23. $m\overset{\frown}{AR}$

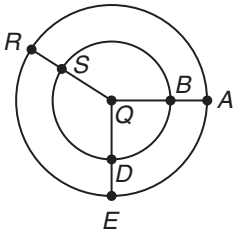
24. $m\angle RQA$

25. $m\overset{\frown}{AER}$

26. $m\overset{\frown}{BSD}$

27. $m\overset{\frown}{DS}$

28. $m\overset{\frown}{BD}$



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11–3 Skills Practice

Arcs and Chords

Complete each sentence.

1. If $\overset{\frown}{SG} \cong \overset{\frown}{RE}$, then $\overline{SG} \cong$ ____?____

2. If $\overset{\frown}{ST} \cong \overset{\frown}{ET}$, then $\triangle SMT \cong \triangle$ ____?____

3. If $\overline{TM} \perp \overline{RG}$, then $\overset{\frown}{RT} \cong$ ____?____

4. If $\overset{\frown}{ST} \cong \overset{\frown}{TE}$, $\overline{ST} \cong$ ____?____

5. If $\overline{RG} \perp \overline{AS}$, then $\overline{SB} \cong$ ____?____

6. If $\overset{\frown}{RE} \cong \overset{\frown}{SG}$, then $\triangle RME \cong \triangle$ ____?____

7. If $\overline{RE} \cong \overline{SG}$, then $\overset{\frown}{RE} \cong$ ____?____

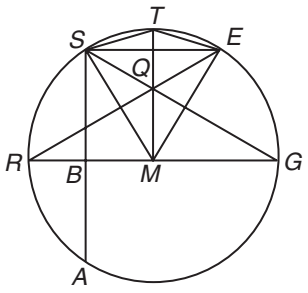
8. If $\overline{TM} \perp \overline{RG}$, then $\overset{\frown}{ST} \cong$ ____?____

9. If $\overline{TM} \perp \overline{RG}$, then $\overline{SQ} \cong$ ____?____

10. If $\overline{TM} \perp \overline{RG}$ and $\overset{\frown}{ST} \cong \overset{\frown}{TE}$, then $\triangle SQT \cong \triangle$ ____?____

11. If $\overline{SQ} \cong \overline{EQ}$, then $\overline{TM} \perp$ ____?____

12. If $\overset{\frown}{SR} \cong \overset{\frown}{AR}$, then $\overline{RG} \perp$ ____?____



Use $\odot B$, where $\overline{BX} \perp \overline{WY}$, to complete each sentence.

13. If $BW = 23$, then $BY =$ ____?____

14. If $WY = 38$, then $WZ =$ ____?____

15. If $WZ = 15$, then $WY =$ ____?____

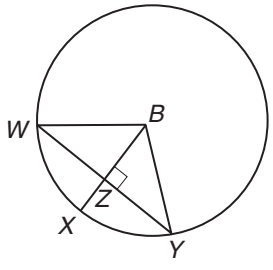
16. If $BZ = 6$ and $WZ = 8$, then $WB =$ ____?____

17. If $WB = 15$ and $BZ = 9$, then $WZ =$ ____?____

18. If $WY = 40$ and $BZ = 15$, then $WB =$ ____?____

19. If $BY = 30$ and $BZ = 18$, then $WY =$ ____?____

20. If $m\overset{\frown}{WY} = 110$, then $m\overset{\frown}{WX} =$ ____?____



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11–4 Skills Practice

Inscribed Polygons

Use ⊙O to find x.

1. $WM = x + 8$, $ZN = 2x + 5$

2. $WM = 3x + 10$, $ZN = 2x + 15$

3. $WM = x - 6$, $ZN = 2x - 12$

4. $WM = 2x - 5$, $ZN = x + 5$

5. $WM = 5x - 1$, $ZN = 2x + 5$

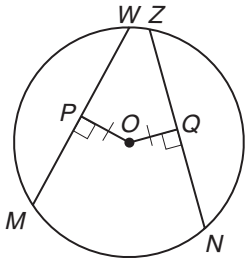
6. $WM = 4x + 15$, $ZN = 3x + 19$

7. $WM = x + 8$, $ZN = 2x + 5$

8. $WM = 4x$, $ZN = 3x + 1$

9. $WM = x - 1$, $ZN = 2x - 7$

10. $WM = 20x + 100$, $ZN = 30x + 80$

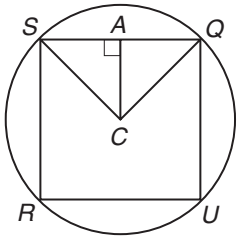


Square SQUR is inscribed in ⊙C with a radius of 20 meters.

11. Find $m\angle SCQ$.

12. Find SQ to the nearest tenth.

13. Find CA to the nearest tenth.



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11–5 Skills Practice

Circumference of a Circle

Find the circumference of each object to the nearest tenth.

1. a round swimming pool with radius 12 feet

2. a circular top of a trampoline with diameter 16 feet

3. the circular base of a paper weight with diameter 3 centimeters

4. a CD with diameter 11 centimeters

5. circular garden with radius 10 feet

6. circular mirror with diameter 4 feet

Find the circumference of each circle to the nearest tenth.

7. $r = 7$ cm

8. $d = 20$ yd

9. $r = 1$ m

10. $d = 6$ ft

11. $r = 200$ ft

12. $d = 5$ in.

13. $r = 2$ m

14. $d = 70$ ft

15. $r = 3$ in.

16. $d = 10$ in.

17. $r = 19$ m

18. $d = 35$ yd

Find the radius of each circle to the nearest tenth for each circumference given.

19. 100 m

20. 32 ft

21. 18 mi

22. 28 cm

23. 80 in.

24. 25 m

25. 75 yd

26. 14 cm

27. 250 ft

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11–6 Skills Practice

Area of a Circle

Find the area of each circle to the nearest hundredth.

1. $r = 10$ in.

2. $r = 18$ cm

3. $r = 4$ mm

4. $d = 50$ ft

5. $d = 6$ in.

6. $d = 30$ m

7. $C = 31.42$ yd

8. $C = 131.95$ m

9. $C = 232.48$ ft

10. $r = 1$ mi

11. $d = 90$ m

12. $C = 628.32$ ft

13. $d = 300$ ft

14. $r = 6$ in.

15. $C = 150.80$ m

A circle has a radius of 10 inches. Find the area of a sector whose central angle has the following measure. Round to the nearest hundredth.

16. 90°

17. 30°

18. 120°

19. 45°

20. 60°

21. 135°

22. 100°

23. 150°

24. 70°

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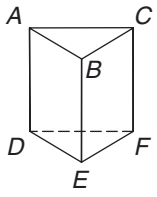
12–1 Skills Practice

Solid Figures

Name the faces, edges, and vertices of each polyhedron.

1.



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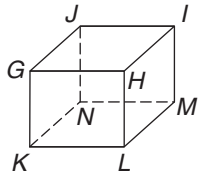

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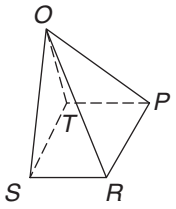
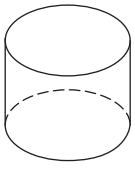


Name each solid.

4.



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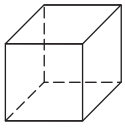

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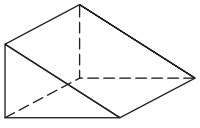


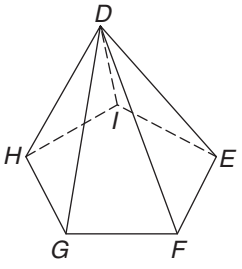
Determine whether each statement is* true *or* false *for the solid.

7. The figure is a prism.

8. The base of the figure is a pentagon.

9. There are five lateral faces.

10. The figure has 6 edges.



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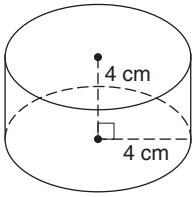
12–2 Skills Practice

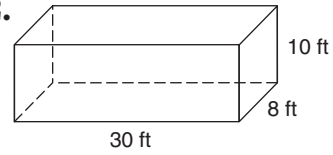
Surface Areas of Prisms and Cylinders

Find the lateral area and the surface area for each solid. Round to the nearest hundredth, if necessary.

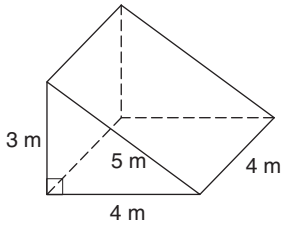
1.



2.



3.



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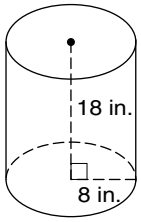

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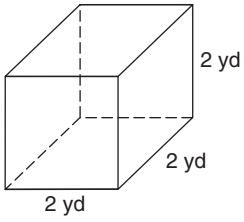
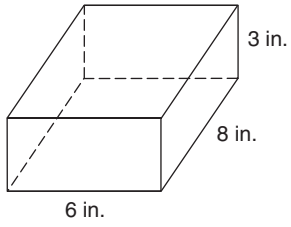
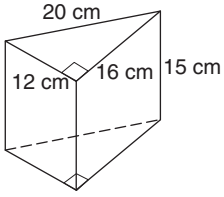


6.



7.



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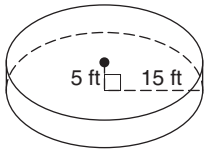

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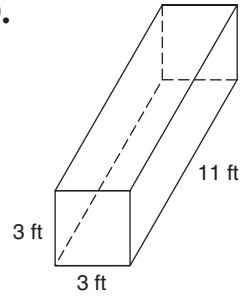

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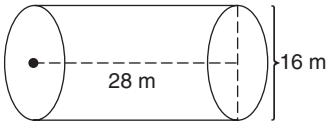
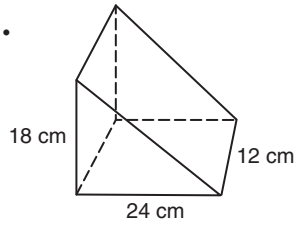


11.



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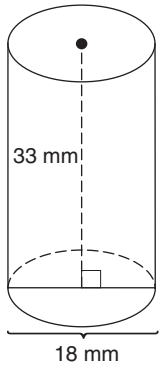


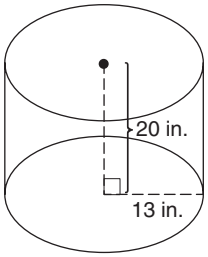
NAME _____ DATE _____ PERIOD _____

12–3 Skills Practice

Volumes of Prisms and Cylinders

Find the volume of each solid. Round to the nearest hundredth, if necessary.

1.



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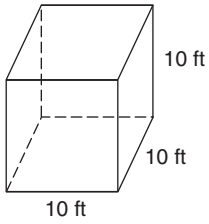

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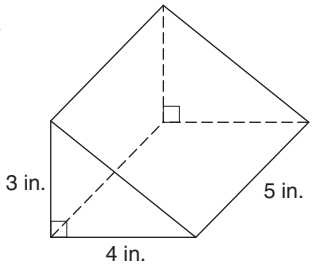

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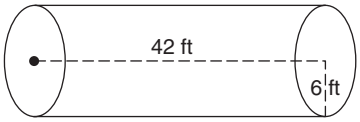

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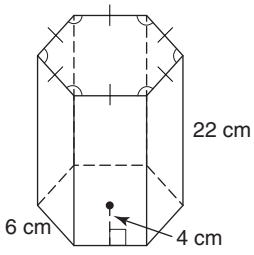

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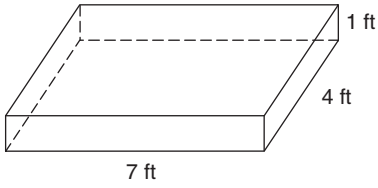
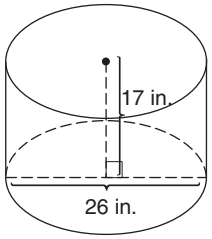


7.



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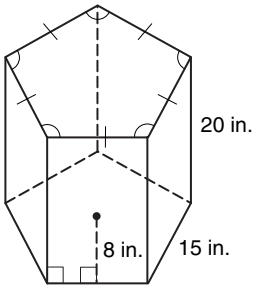

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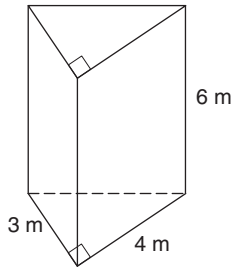

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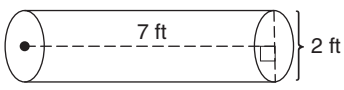

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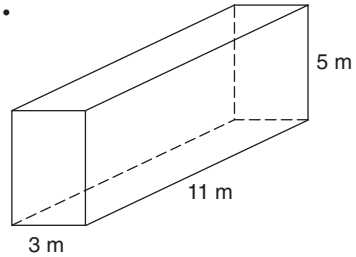

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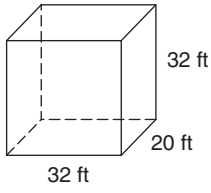


12–4

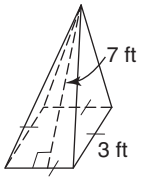
NAME _____ DATE _____ PERIOD _____

Skills Practice

Surface Areas of Pyramids and Cones

Find the lateral area and the surface area of each regular pyramid or cone. Round to the nearest hundredth, if necessary.

1.



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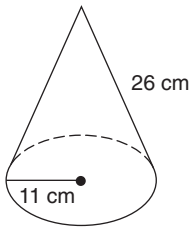

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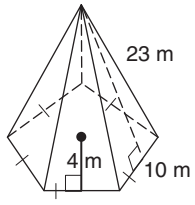

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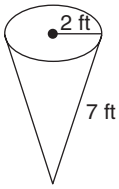

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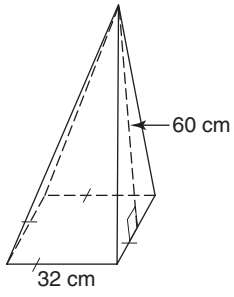
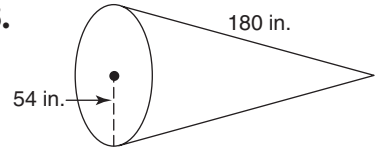
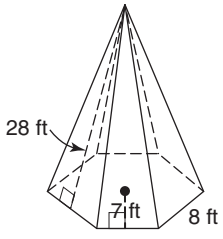


6.



7.



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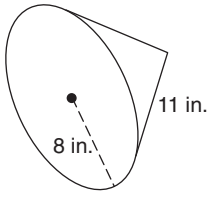

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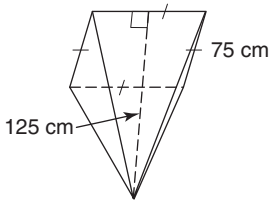

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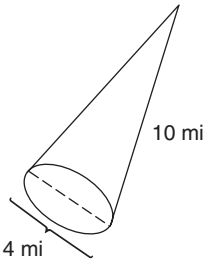

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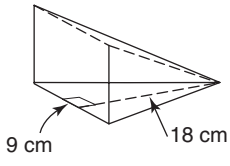

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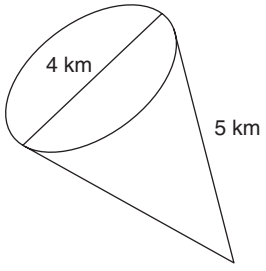


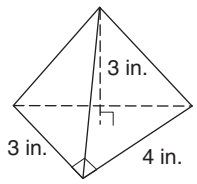
NAME _____ DATE _____ PERIOD _____

12–5 Skills Practice

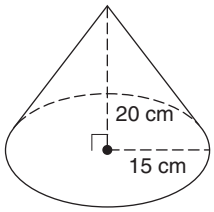
Volumes of Pyramids and Cones

Find the volume of each solid. Round to the nearest hundredth, if necessary.

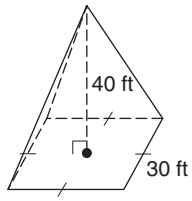
1.



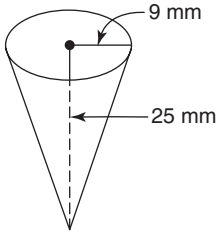
2.



3.



4.



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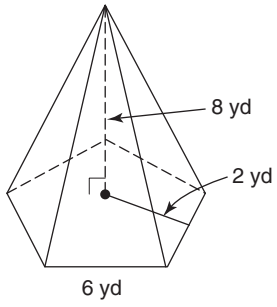
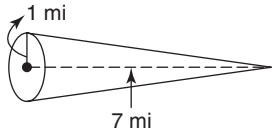


6.



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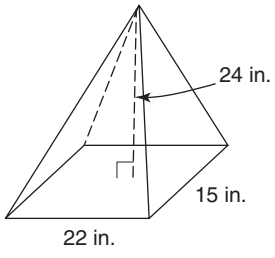

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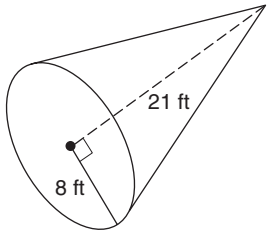

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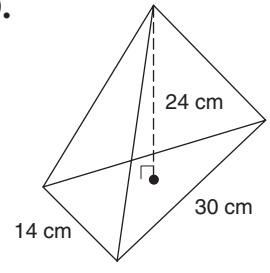

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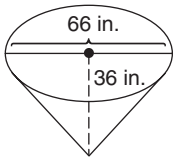

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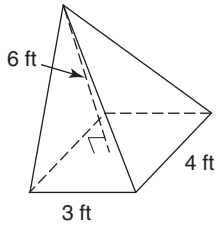

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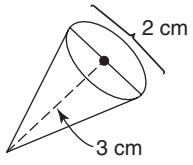


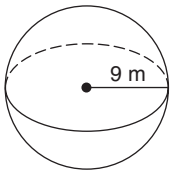
NAME _____ DATE _____ PERIOD _____

12–6 Skills Practice

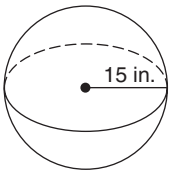
Spheres

Find the surface area and volume of each sphere. Round to the nearest hundredth.

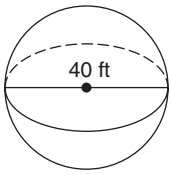
1.



2.



3.



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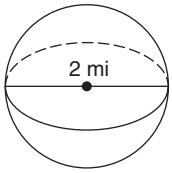
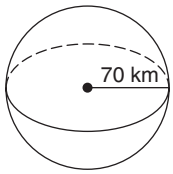
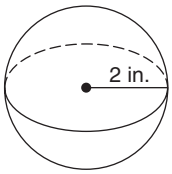


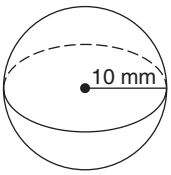
5.



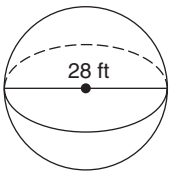
6.



7.



8.



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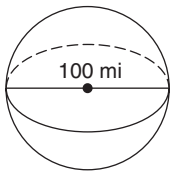
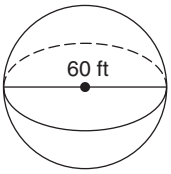
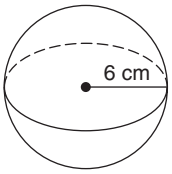


10.



11.



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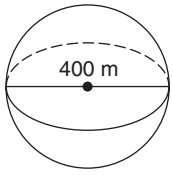


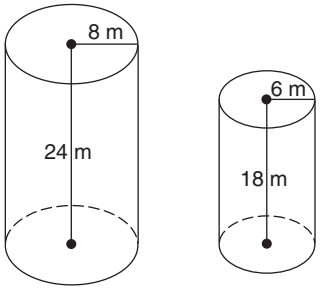
NAME _____ DATE _____ PERIOD _____

Skills Practice

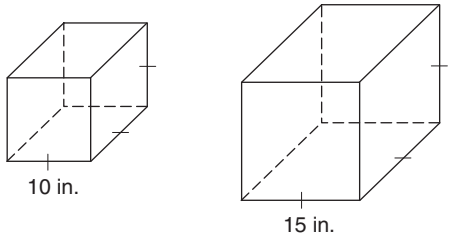
Similarity of Solid Figures

Determine whether each pair of solids is similar.

1.



2.



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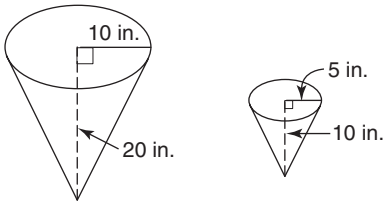

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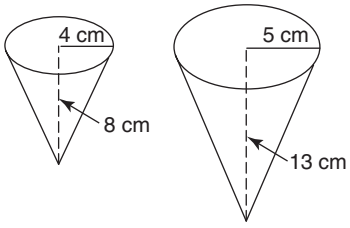

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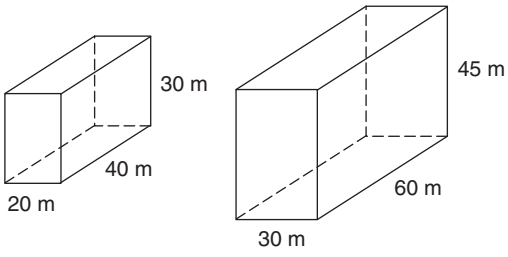

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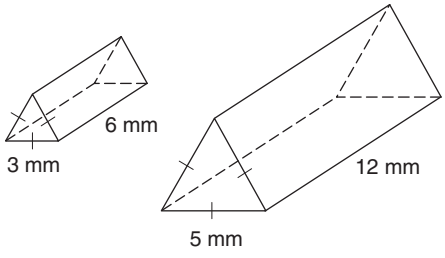
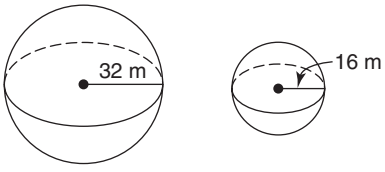


Find the scale factor of the solid on the left to the solid on the right for each pair of similar solids. Then find the ratios of the surface areas and the volumes.

7.



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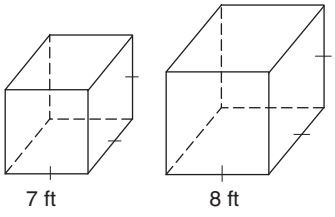


NAME _____ DATE _____ PERIOD _____

13–1 Skills Practice

Simplifying Square Roots

Simplify each expression.

1. $\sqrt{9}$ **2.** $\sqrt{169}$ **3.** $\sqrt{400}$ **4.** $\sqrt{225}$

5. $\sqrt{256}$ **6.** $\sqrt{900}$ **7.** $\sqrt{289}$ **8.** $\sqrt{2500}$

9. $\sqrt{44}$ **10.** $\sqrt{18}$ **11.** $\sqrt{75}$ **12.** $\sqrt{300}$

13. $\sqrt{98}$ **14.** $\sqrt{90}$ **15.** $\sqrt{125}$ **16.** $\sqrt{80}$

17. $\sqrt{250}$ **18.** $\sqrt{12} \cdot \sqrt{5}$ **19.** $\sqrt{6} \cdot \sqrt{6}$ **20.** $\sqrt{10} \cdot \sqrt{2}$

21. What is the square root of 625?

22. Multiply $\sqrt{17} \cdot \sqrt{3}$.

23. Write $\sqrt{3} \cdot \sqrt{15}$ in simplest form.

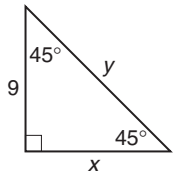
NAME _____ DATE _____ PERIOD _____

Skills Practice

45°-45°-90° Triangles

Find the missing measures. Write all radicals in simplest form.

1.



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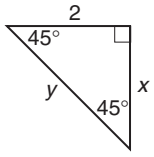

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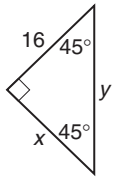

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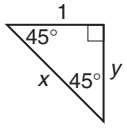

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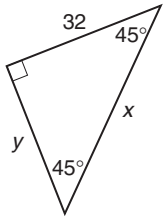

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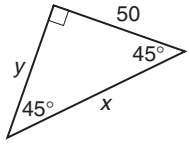

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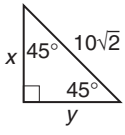

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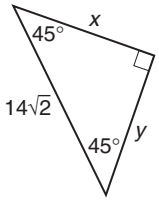

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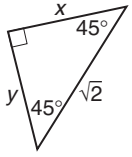

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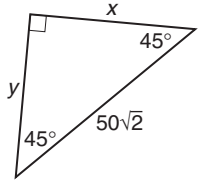

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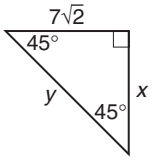

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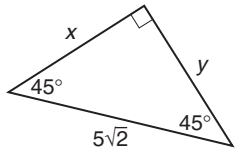

13–3

NAME _____ DATE _____ PERIOD _____

Skills Practice

30°-60°-90° Triangles

Find the missing measures. Write all radicals in simplest form.

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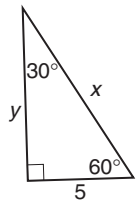

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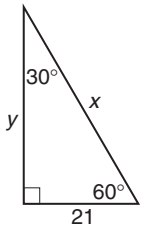

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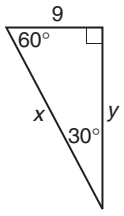

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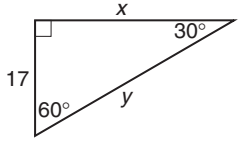

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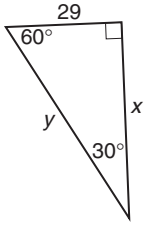

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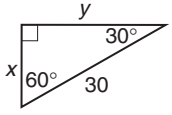

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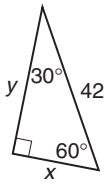

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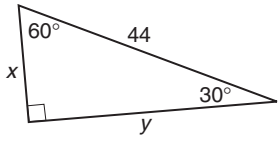

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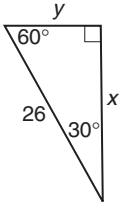

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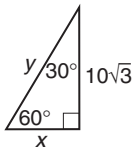

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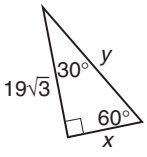

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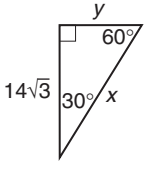

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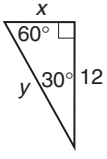

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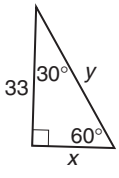

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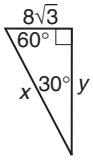
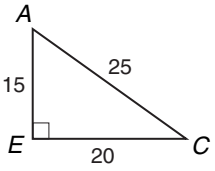


NAME _____ DATE _____ PERIOD _____

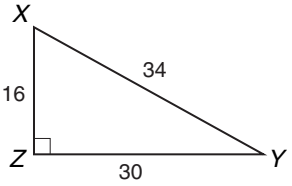
13–4 Skills Practice

Tangent Ratio

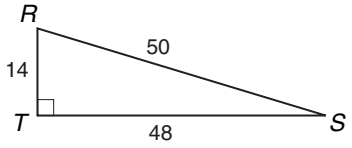
Find each tangent. Round to four decimal places, if necessary.



1. tan A



2. tan Y



3. tan S

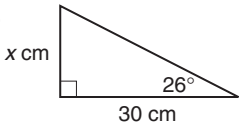
4. tan C

5. tan X

6. tan R

Find each missing measure. Round to the nearest tenth.

7.



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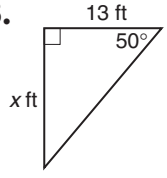

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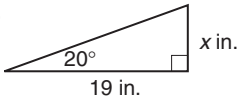

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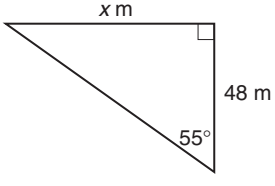

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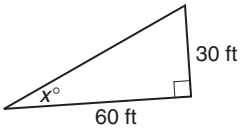

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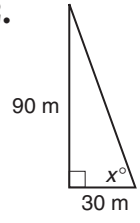

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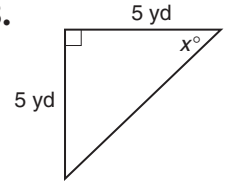

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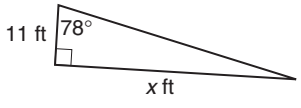

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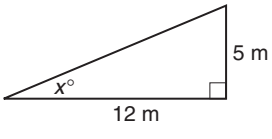
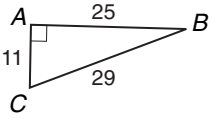


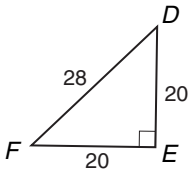
NAME _____ DATE _____ PERIOD _____

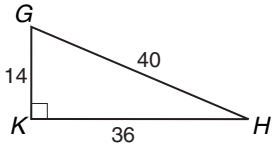
13–5 Skills Practice

Sine and Cosine Ratios

Find each sine or cosine. Round to four decimal places, if necessary.







1. $\sin B$

2. $\cos C$

3. $\cos B$

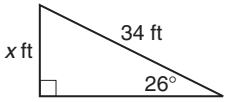
4. $\sin D$

5. $\sin F$

6. $\cos G$

Find each missing measure. Round to the nearest tenth.

7.



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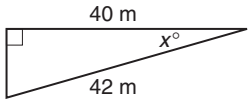

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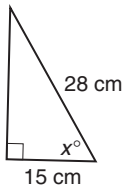

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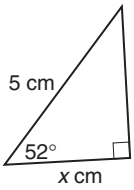

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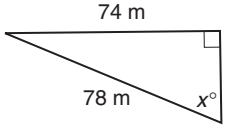

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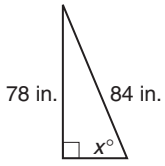

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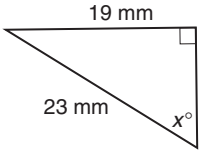

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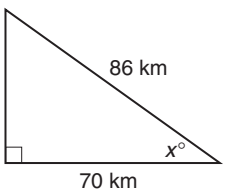

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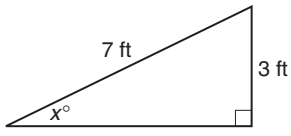


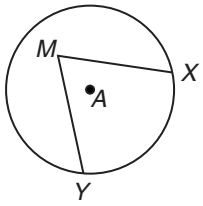
NAME _____ DATE _____ PERIOD _____

14–1 Skills Practice

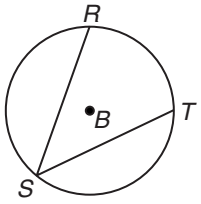
Inscribed Angles

Determine whether each angle is an inscribed angle. Name the intercepted arc for the angle.

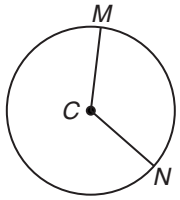
1. $\angle XMY$



2. $\angle RST$



3. $\angle MCN$



Find each measure.

4. $m\angle EDA$

5. $m\widehat{DE}$

6. $m\angle BDA$

7. $m\angle BDE$

8. $m\angle ZYW$

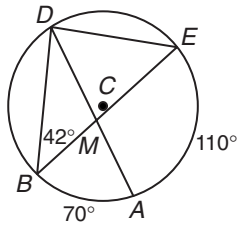
9. $m\widehat{VZ}$

10. $m\angle XYV$

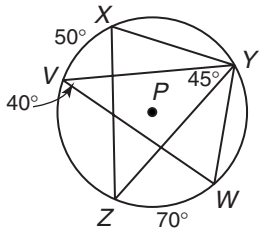
11. $m\widehat{WY}$

12. $m\widehat{XY}$

13. $m\angle XZY$



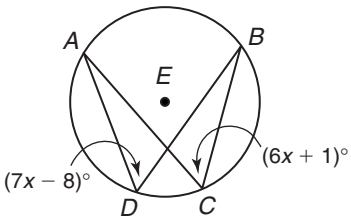
Exercises 4–7



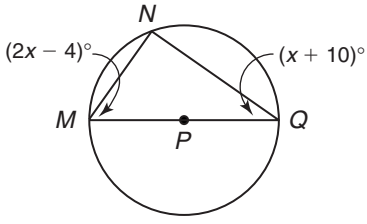
Exercises 8–13

Find the value of x in each circle.

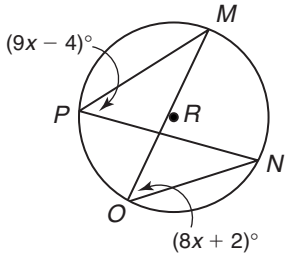
14.



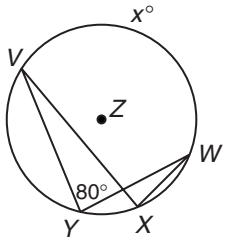
15.



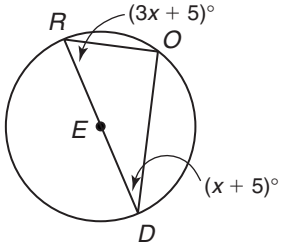
16.



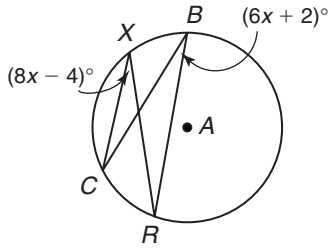
17.



18.



19.



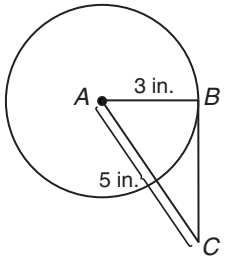
NAME _____ DATE _____ PERIOD _____

14–2 Skills Practice

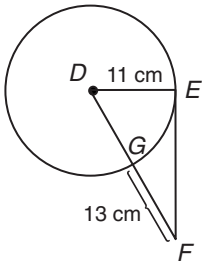
Tangents to a Circle

Find each measure. Round to the nearest tenth if necessary. Assume segments that appear to be tangent are tangent.

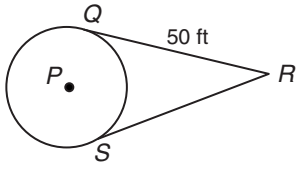
1. BC



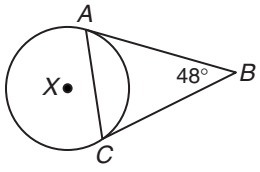
2. DF



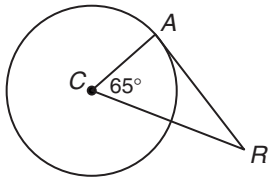
3. SR



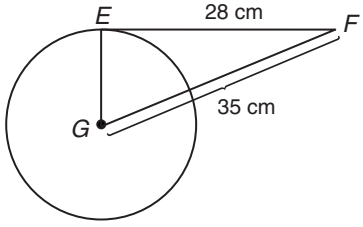
4. $m\angle BAC$



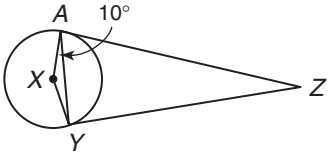
5. $m\angle ARC$



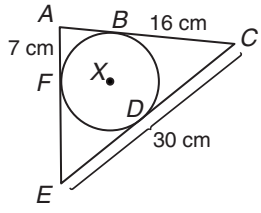
6. EG



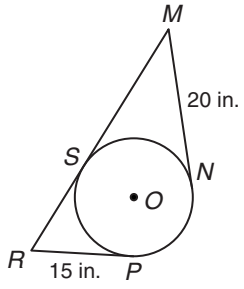
7. $m\angle ZAY$



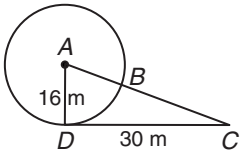
8. FE



9. MR

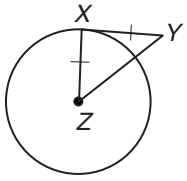


10. BC



11. HG

12. $m\angle XZY$



NAME _____ DATE _____ PERIOD _____

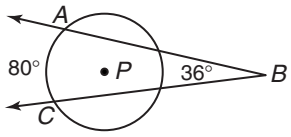
14–3 Skills Practice

Secant Angles

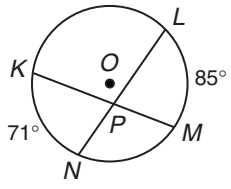
Find each measure.

1. $m\angle EFB$

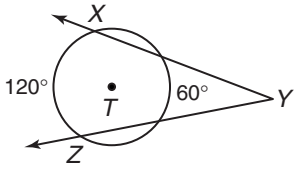
2. $m\angle ABC$



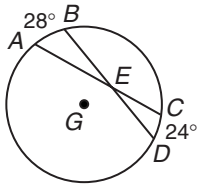
3. $m\angle LPM$



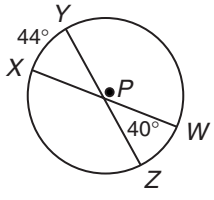
4. $m\angle XYZ$



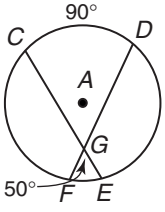
5. $m\angle CED$



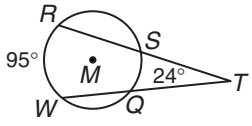
6. $m\widehat{WZ}$



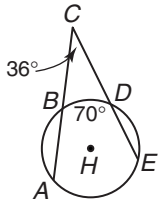
7. $m\widehat{FE}$



8. $m\widehat{SQ}$

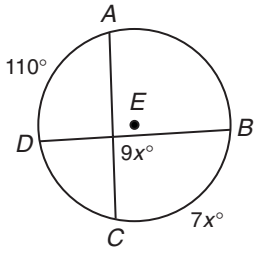


9. $m\widehat{AE}$

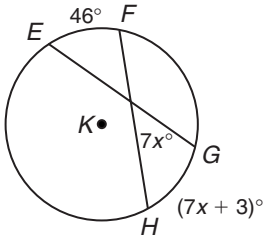


Find the value of x in each circle. Then find the given measure.

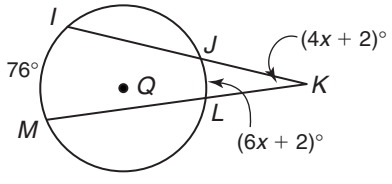
10. $m\widehat{BC}$



11. $m\widehat{HG}$



12. $m\widehat{JL}$



14–4

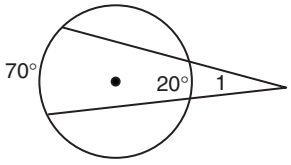
NAME _____ DATE _____ PERIOD _____

Skills Practice

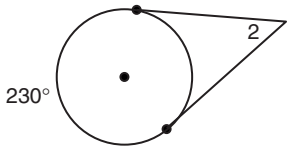
Secant-Tangent Angles

Find the measure of each angle. Assume segments that appear to be tangent are tangent.

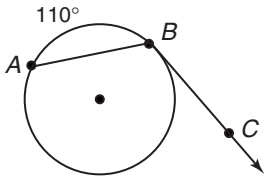
1. $\angle 1$



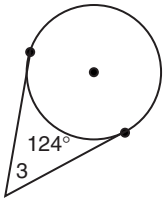
2. $\angle 2$



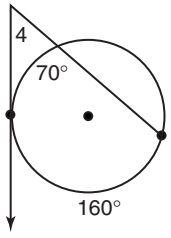
3. $\angle ABC$



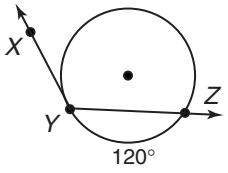
4. $\angle 3$



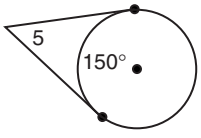
5. $\angle 4$



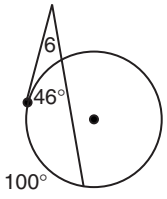
6. $\angle XYZ$



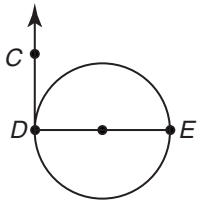
7. $\angle 5$



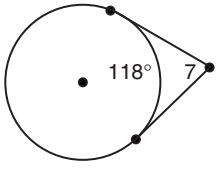
8. $\angle 6$



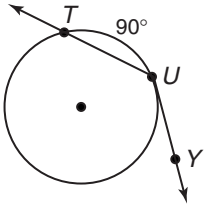
9. $\angle CDE$



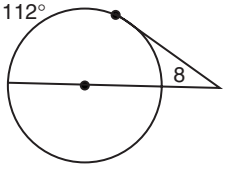
10. $\angle 7$



11. $\angle TUY$



12. $\angle 8$



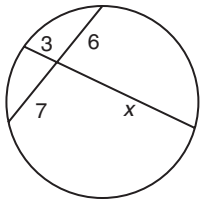
NAME _____ DATE _____ PERIOD _____

Skills Practice

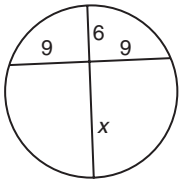
Segment Measures

Find the value of x in each circle. If necessary, round to the nearest tenth.

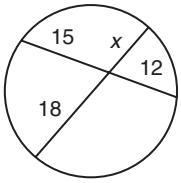
1.



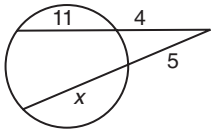
2.



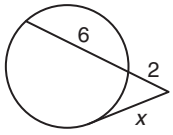
3.



4.



5.



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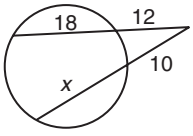
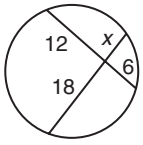
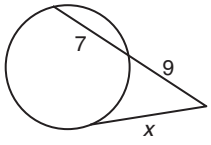


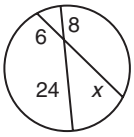
7.



8.

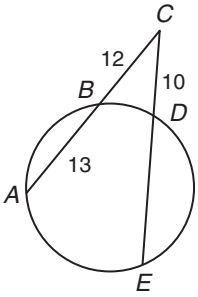


9.

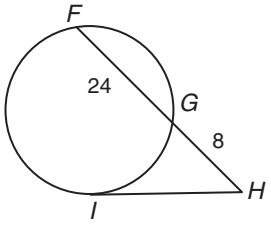


Find each measure. If necessary, round to the nearst tenth.

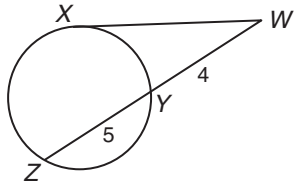
10. *DE*



11. *IH*



12. *WX*



NAME _____ DATE _____ PERIOD _____

14–6 Skills Practice

Equations of Circles

Write an equation of a circle for each center and radius or diameter measure given.

1. $(1, 1)$, $r = 2$

2. $(-3, 2)$, $d = 2$

3. $(-1, -5)$, $r = 3$

4. $(4, -3)$, $d = 4$

5. $(0, 2)$, $r = 4$

6. $(5, 0)$, $r = 1$

7. $(0, 0)$, $r = 6$

8. $(-1, 1)$, $d = 6$

9. $(-5, 5)$, $r = 5$

10. $(-3, 3)$, $d = 20$

11. $(-6, -1)$, $d = 10$

12. $(4, 4)$, $d = 14$

13. $(3, 7)$, $d = 2\sqrt{2}$

14. $(-5, 2)$, $r = \sqrt{6}$

15. $(0, -2)$, $r = \sqrt{10}$

16. $(7, 0)$, $d = 2\sqrt{5}$

Find the coordinates of the center and the measure of the radius for each circle whose equation is given.

17. $(x + 5)^2 + (y - 2)^2 = 49$

18. $(x - 3)^2 + (y + 7)^2 = 100$

19. $(x + 1)^2 + (y + 8)^2 = 121$

20. $x^2 + y^2 = 64$

21. $x^2 + (y + 9)^2 = 81$

22. $(x + 3)^2 + y^2 = 25$

23. $(x - 6)^2 + (y + 6)^2 = 36$

24. $x^2 + y^2 = 5$

25. $x^2 + (y - 4)^2 = 7$

26. $(x - 1)^2 + (y + 1)^2 = 10$

NAME _____ DATE _____ PERIOD _____

15–1 Skills Practice

Logic and Truth Tables

***For Exercises 1–16, use conditionals* a, b, c *and* d.**

***a*: A triangle has three sides.**

***b*: January is a day of the week.**

***c*: 5 × 5 = 20**

***d*: Parallel lines do not intersect.**

Write the statements for each negation.

1. $\sim a$

2. $\sim b$

3. $\sim c$

4. $\sim d$

Write a statement for each conjunction or disjunction. Then find the truth value.

5. $a \vee b$

6. $a \wedge b$

7. $a \vee c$

8. $a \wedge c$

9. $a \vee d$

10. $a \wedge d$

11. $b \vee c$

12. $b \wedge c$

13. $b \vee d$

14. $b \wedge d$

15. $c \vee d$

16. $c \wedge d$

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15–2 Skills Practice

Deductive Reasoning

***Use the Law of Detachment to determine a conclusion that follows from statements (1) and (2). If a valid conclusion does not follow, write* no valid conclusion.**

1. (1) If a figure is a triangle, then it is a polygon.
(2) The figure is a triangle.

2. (1) If I sell my skis, then I will not be able to go skiing.
(2) I did not sell my skis.

3. (1) If two angles are complementary, then the sum of their measures is 90.
(2) Angle A and B are complementary.

4. (1) If the measures of the lengths of two sides of a triangle are equal, then the triangle is isosceles.
(2) Triangle ABC has two sides with lengths of equal measure.

5. (1) If it rains, we will not go on a picnic.
(2) We do not go on a picnic.

***Use the Law of Syllogism to determine a conclusion that follows from statements (1) and (2). If a valid conclusion does not follow, write* no valid conclusion.**

6. (1) If my dog does not bark all night, I will give him a treat.
(2) If I give my dog a treat, then he will wag his tail.

7. (1) If a polygon has three sides, then the figure is a triangle.
(2) If a figure is a triangle, then the sum of the measures of the interior angles is 180.

8. (1) If the concert is postponed, then I will be out of town.
(2) If the concert is postponed, then it will be held in the gym.

9. (1) All whole numbers are rational numbers.
(2) All whole numbers are real numbers.

10. (1) If the temperature reaches 70°, then the swimming pool will open.
(2) If the swimming pool opens, then we will not go to the beach.

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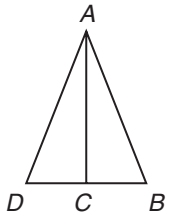
15–3 Skills Practice

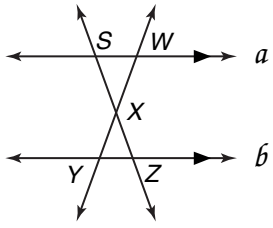
Paragraph Proofs

Write a paragraph proof for each conjecture.

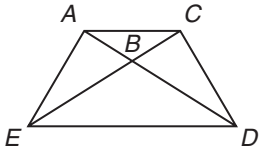
1. If $\triangle ABD$ is an isosceles triangle with base $\overline{BD}$ and C is the midpoint of $\overline{BD}$, then $\triangle ACD \cong \triangle ACB$.



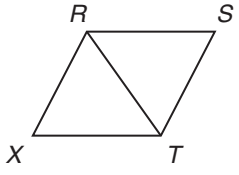
2. If lines a and b are parallel and $\overline{WX} \cong \overline{XY}$, then $\triangle WXS \cong \triangle YXZ$.



3. If $ACDE$ is an isosceles trapezoid with bases $\overline{AC}$ and $\overline{ED}$, then $\triangle AED \cong \triangle CDE$.



4. If $RSTX$ is a rhombus, then $\triangle RXT \cong \triangle RST$.



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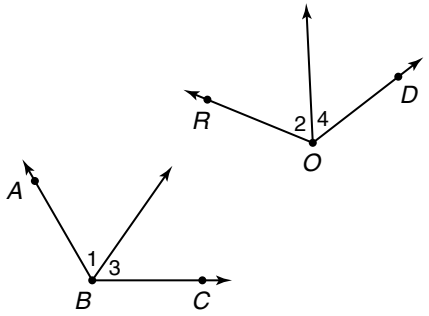
15–4 Skills Practice

Preparing for Two-Column Proofs

Complete each proof.

1. If $m\angle 1 = m\angle 2$ and $m\angle 3 = m\angle 4$, then $m\angle ABC = m\angle ROD$.



Given: $m\angle 1 = m\angle 2$, $m\angle 3 = m\angle 4$
Prove: $m\angle ABC = m\angle ROD$
Proof:

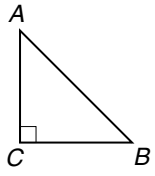
Statements	Reasons
a. $m\angle 1 = m\angle 2$, $m\angle 3 = m\angle 4$	**a.** _____
b. $m\angle ABC = m\angle 1 + m\angle 3$ $m\angle ROD = m\angle 2 + m\angle 4$	**b.** _____
c. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 4$	**c.** _____
d. $m\angle ABC = m\angle ROD$	**d.** _____

2. If $\frac{7x}{6} = 14$, then $x = 12$.

Given: $\frac{7x}{6} = 14$
Prove: $x = 12$
Proof:

Statements	Reasons
a. $\frac{7x}{6} = 14$	**a.** _____
b. $7x = 84$	**b.** _____
c. $x = 12$	**c.** _____

3. If $\triangle ABC$ is a right triangle with $\angle C$ a right angle and $m\angle A = m\angle B$, then $m\angle A = 45$.



Given: $\triangle ABC$ is a right triangle with $\angle C$ a right angle and $m\angle A = m\angle B$.
Prove: $m\angle A = 45$
Proof:

Statements	Reasons
a. $\triangle ABC$ is a right triangle with $\angle C$ a right angle and $m\angle A = m\angle B$	**a.** _____
b. $m\angle A + m\angle B + m\angle C = 180$	**b.** _____
c. $m\angle C = 90$	**c.** _____
d. $m\angle A + m\angle B = 90$	**d.** _____
e. $m\angle A + m\angle A = 90$	**e.** _____
f. $2m\angle A = 90$	**f.** _____
g. $m\angle A = 45$	**g.** _____

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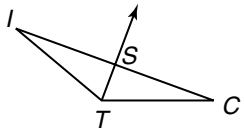
15–5 Skills Practice

Two-Column Proofs

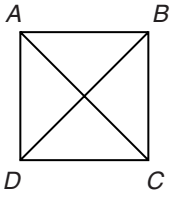
Write a two-column proof.

1. Given: $\triangle ITC$ is an isosceles triangle with base $\overline{IC}$, $\overrightarrow{TS}$ bisects $\angle ITC$
Prove: $\overline{IS} \cong \overline{CS}$
Proof:



Statements	Reasons
a.	**a.**
b.	**b.**
c.	**c.**
d.	**d.**
e.	**e.**
f.	**f.**
g.	**g.**

2. Given: $ABCD$ is a square.
Prove: $\overline{AC} \cong \overline{BD}$
Proof:



Statements	Reasons
a.	**a.**
b.	**b.**
c.	**c.**
d.	**d.**
e.	**e.**
f.	**f.**
g.	**g.**

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15–6 Skills Practice

Coordinate Proofs

Position and label each figure on a coordinate plane.

1. a square with sides m units long

2. a right triangle with legs p and r units long

3. a rhombus with sides c units long

4. an isosceles triangle with base d units long and heights s units long

5. a rectangle with length x units and width y units

16–1

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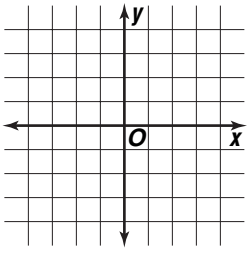
Skills Practice

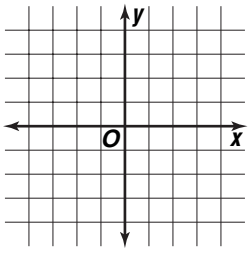
Solving Systems of Equations by Graphing

Solve each system of equations by graphing.

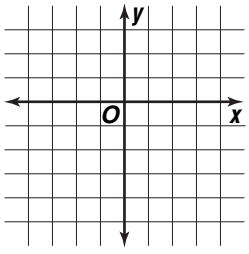
1. $y = x$
$y = -x + 2$



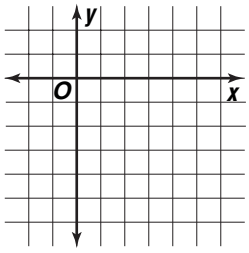
2. $y = 2x + 4$
$y = -x + 1$



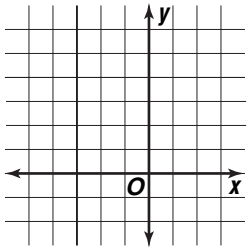
3. $y = x - 1$
$y = -x - 5$



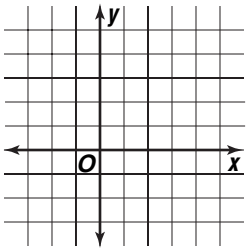
4. $y = x - 5$
$y = -x + 1$



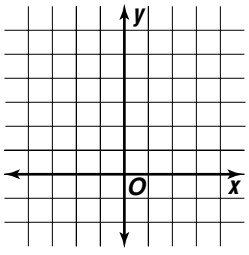
5. $y = x + 4$
$y = -x - 2$



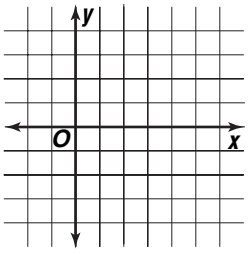
6. $y = -x$
$y = -3x + 4$



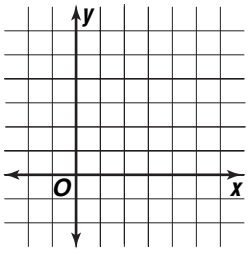
7. $y = 2x + 1$
$y = 3x + 2$



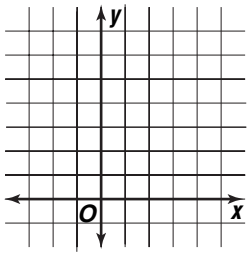
8. $y = x - 6$
$y = -2x + 6$



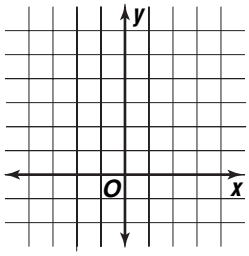
9. $y = x - 1$
$y = -x + 5$



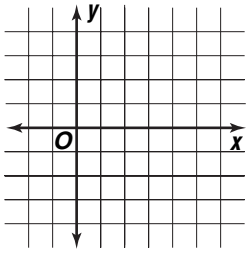
10. $y = x + 5$
$y = -3x + 1$



11. $y = x + 1$
$y = 2x + 4$



12. $y = -x + 1$
$y = -2x + 5$



NAME _____ DATE _____ PERIOD _____

16–2 Skills Practice

Solving Systems of Equations by Using Algebra

Use substitution to solve each system of equations.

1. $y = 7$
$x + 2y = 5$

2. $y = -3$
$x - y = 8$

3. $y = x$
$2x + y = 15$

4. $y = x - 7$
$2x + 3y = 19$

5. $y = x + 2$
$3x - 2y = -4$

6. $y = x - 1$
$4x - 3y = 4$

7. $3x + y = 2$
$2x + 2y = 8$

8. $-2x + y = 0$
$3x - y = 4$

9. $4x + y = -13$
$2x - 3y = -11$

Use elimination to solve each system of equations.

10. $x + y = 7$
$x - y = 1$

11. $x + y = 4$
$2x - y = -13$

12. $x + y = -3$
$3x - y = -5$

13. $x - y = 5$
$2x + y = 4$

14. $x - y = -2$
$-2x + y = -1$

15. $x + y = 2$
$-3x - y = -4$

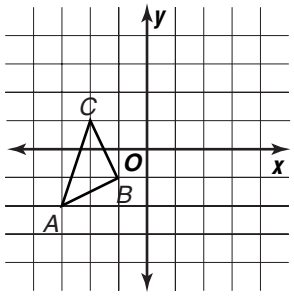
NAME _____ DATE _____ PERIOD _____

16–3 Skills Practice

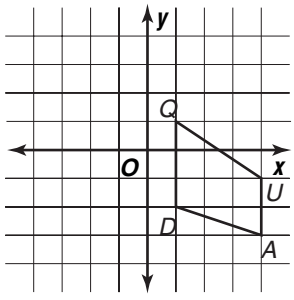
Translations

Find the coordinates of the vertices of each figure after the given translation. Then graph the translation image.

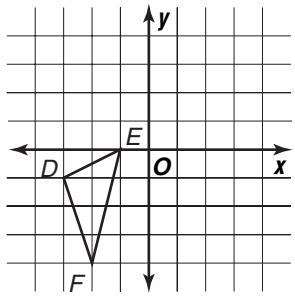
1. (3, 4)



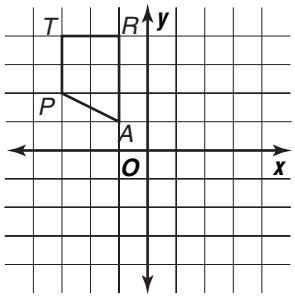
2. (−2, 3)



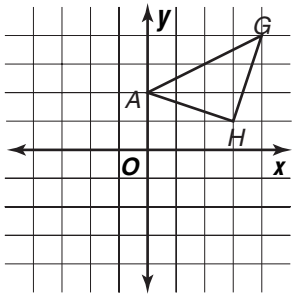
3. (1, 5)



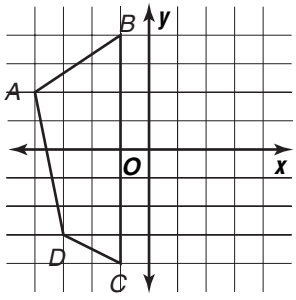
4. (3, −2)



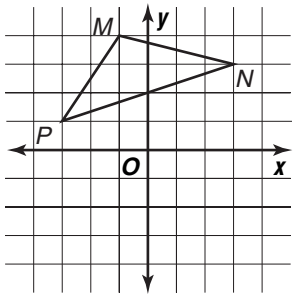
5. (−3, −1)



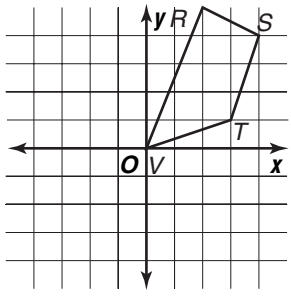
6. (4, 0)



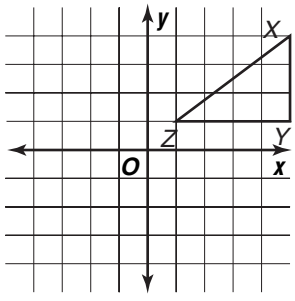
7. (0, −3)



8. (−2, −4)



9. (−5, 0)



16–4

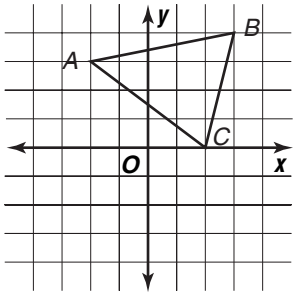
NAME _____ DATE _____ PERIOD _____

Skills Practice

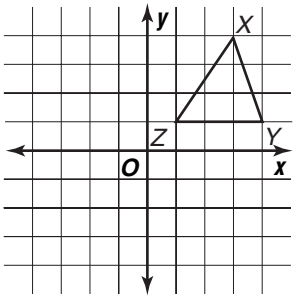
Reflections

Find the coordinates of the vertices of each figure after a reflection over the given axis. Then graph the reflection image.

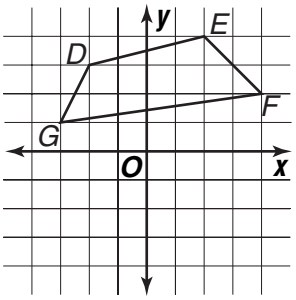
1. x-axis



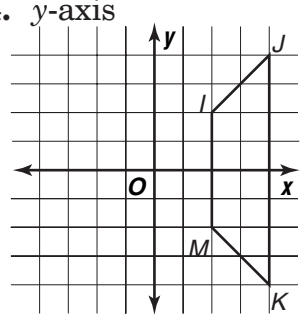
2. y-axis



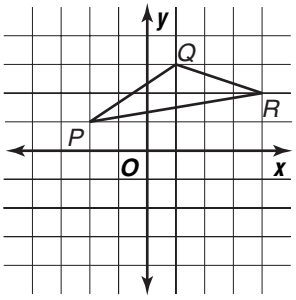
3. x-axis



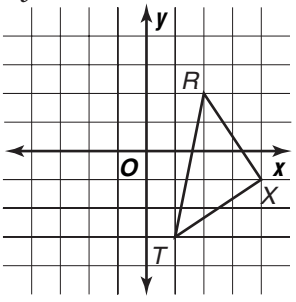
4. y-axis



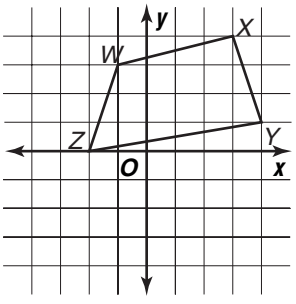
5. x-axis



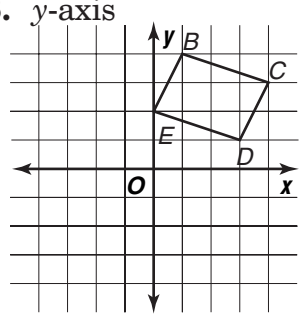
6. y-axis



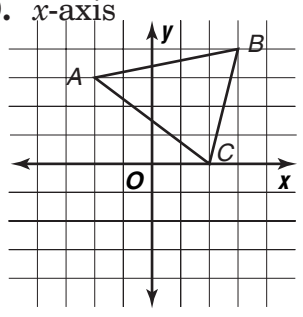
7. x-axis



8. y-axis



9. x-axis



16–5

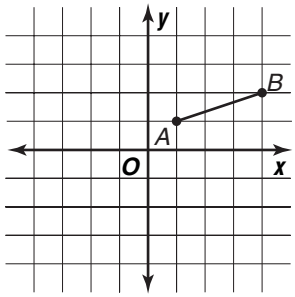
NAME _____ DATE _____ PERIOD _____

Skills Practice

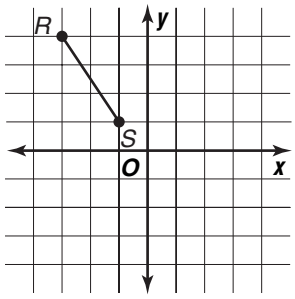
Rotations

Find the coordinates of the vertices of each figure after the given rotation about the origin. Then graph the rotation image.

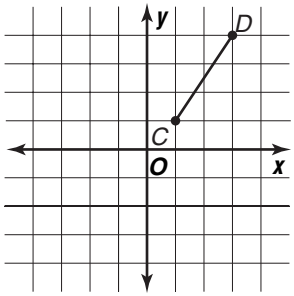
1. 90° counterclockwise



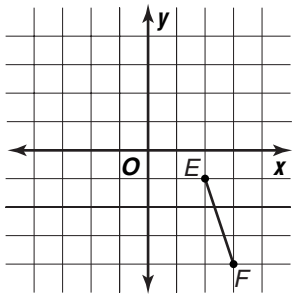
2. 90° clockwise



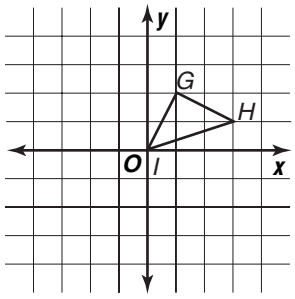
3. 180° counterclockwise



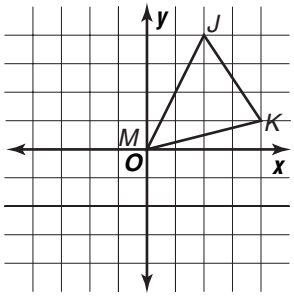
4. 180° clockwise



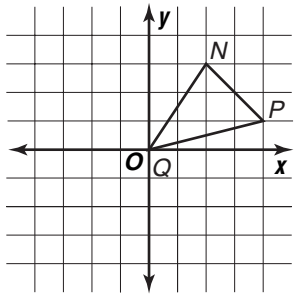
5. 90° counterclockwise



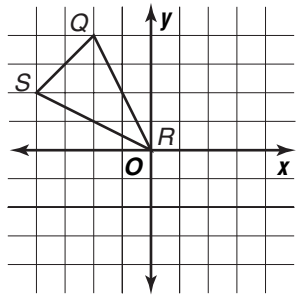
6. 90° clockwise



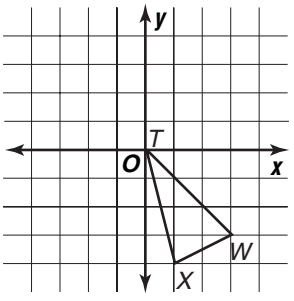
7. 180° clockwise



8. 90° counterclockwise



9. 90° clockwise



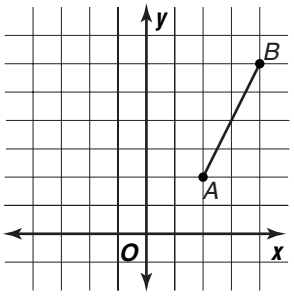
NAME _____ DATE _____ PERIOD _____

16–6 Skills Practice

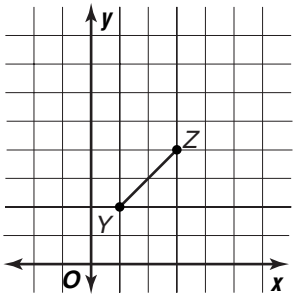
Dilations

Find the coordinates of the dilation image for the given scale factor* k*, and graph the dilation image.

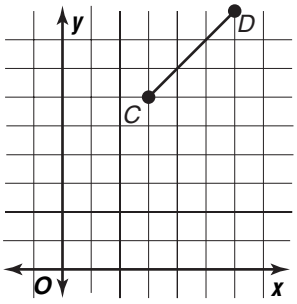
1. $\frac{1}{2}$



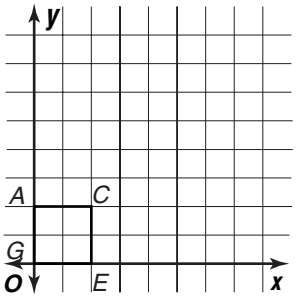
2. 2



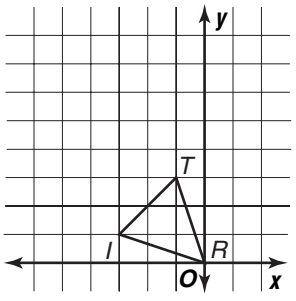
3. $\frac{1}{3}$



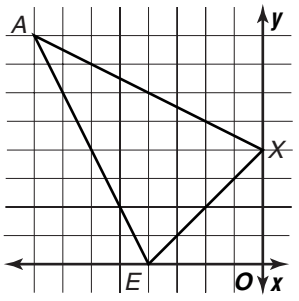
4. 4



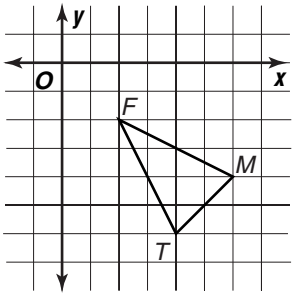
5. 2



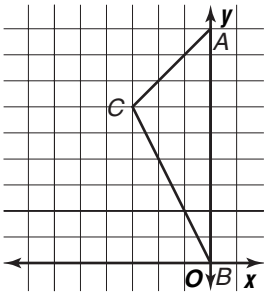
6. $\frac{1}{4}$



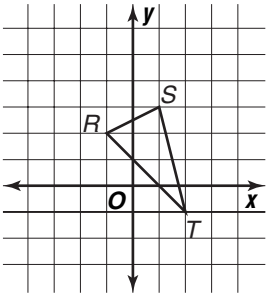
7. $\frac{1}{2}$



8. $\frac{2}{3}$



9. 2



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