

# CHAPTER

# 2

## Operations on Decimal Numbers

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# Get Ready

## Place Value

Use a **place value chart** to help you estimate.  
This place value chart shows the number 1247.63.

Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths
1	2	4	7	.	6	3

1. Complete the chart.

	Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
1349.52					.			
45.069					.			
100.05					.			
0.455					.			

## Compare and Order Numbers

You can compare or order numbers by lining up the decimals.

270 is the same as 270.0

	Hundreds	Tens	Ones	Decimal Point	Tenths
270	2	7	0	.	0
2.7	0	0	2	.	7
27	0	2	7	.	0

List the numbers from largest to smallest: 270, 27, and 2.7.

2. List the numbers from largest to smallest.

a) 

1.9
2.4
2

 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b) 

365.7
35.8
360.9

 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

2 is the same as 2.0

3. Estimate the answer. Then, calculate.

Question	Estimate	Calculate
a) $46 + 22 + 35$	$46 \rightarrow 50$ $22 \rightarrow 20$ $+ \underline{35} \rightarrow \underline{40}$	$46$ $22$ $+ \underline{35}$
b) $74 - 39$	$74 \rightarrow$ $- \underline{39} \rightarrow$ _____	$74$ $- \underline{39}$
c) $49 \times 5$	$49 \rightarrow 50$ $\times \underline{5} \rightarrow \times \underline{5}$	$49$ $\times \underline{5}$

Round each number.

### Order of Operations

Follow the order of operations to calculate the answers.

Step 1: Do operations in brackets.

Step 2: Multiply or divide in order from left to right.

Step 3: Add or subtract in order from left to right.

( )

$\times, \div$

$+, -$

4. Calculate. Use the order of operations.

a)  $5 + 7 - 4$

Add first.

= \_\_\_\_\_ - 4

Subtract.

= \_\_\_\_\_

b)  $15 + 6 \div 2$

Divide first.

=  $15 +$  \_\_\_\_\_

Add.

= \_\_\_\_\_

c)  $16 - 4 + 2$

Subtract first.

= \_\_\_\_\_ + 2

Add.

= \_\_\_\_\_

d)  $4 \div 2 \times 8$

Divide first.

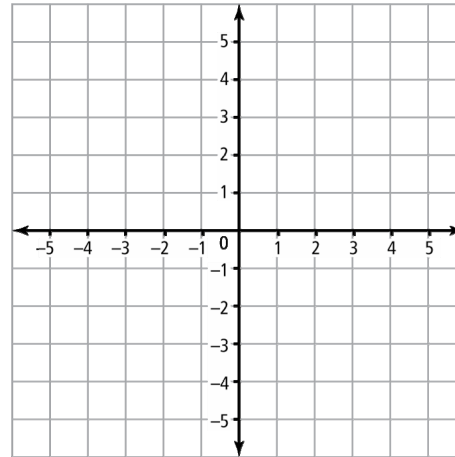
= \_\_\_\_\_  $\times 8$

Multiply.

= \_\_\_\_\_

## 2.1 Warm Up

1. On the coordinate grid,
  - a) label the origin
  - b) label the  $x$ -axis and the  $y$ -axis
  - c) label each quadrant
2. a) Plot 1 point in each quadrant on the coordinate grid.
  - b) Label the points A, B, C, and D.
  - c) List the coordinates of each point.



A ( \_\_\_\_\_, \_\_\_\_\_ )

B ( \_\_\_\_\_, \_\_\_\_\_ )

C ( \_\_\_\_\_, \_\_\_\_\_ )

D ( \_\_\_\_\_, \_\_\_\_\_ )

- M E** 3. What is the place value of the **bold underlined** number?  
Use the place value chart to help you.

Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
				.			

- a) 1278.21 \_\_\_\_\_      b) 39.06 \_\_\_\_\_
- c) 501.64 \_\_\_\_\_      d) 1.72 \_\_\_\_\_
- e) 300.065 \_\_\_\_\_      f) 67.32 \_\_\_\_\_

4. Circle the number closest to the number in the box.

- a) 30   37   40                      b) 200   234   300
- c) 2   2.8   3                      d) 50   56.6   60

## 2.1 Add and Subtract Decimal Numbers

### Example 1: Use Estimation to Place the Decimal Point

Place the decimal point in the answer to make a true statement.

$$24.6 + 17.3 = 419$$

**Solution**

Use the first digit.

*Method 1: Use Front-End Estimation*

$$24.6 \rightarrow 20$$

$$17.3 \rightarrow 10$$

$$\text{Think: } 20 + 10 = 30$$

The answer closest to 30 is 41.9.

The first digits are  
2 and 1. They show  
the tens place.

*Method 2: Use Relative Size*

$$24.6 \text{ is closer to } 20$$

$$17.3 \text{ is closer to } 20$$

$$\text{Think: } 20 + 20 = 40$$

The answer closest to 40 is 41.9.

Round to the  
nearest 10.

### Show You Know

Estimate the answer. Use your estimate to place the decimal point.

a)  $8.04 + 1.83 = 987$

b)  $9.67 - 1.35 = 832$

$$\begin{array}{r} 8.04 \rightarrow 8 \\ + 1.83 \rightarrow +2 \\ \hline \end{array}$$

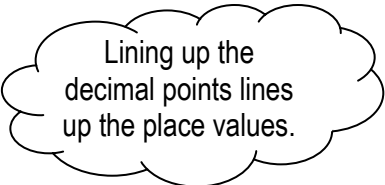
*Estimate:*

c)  $12.6 + 10.2 = 228$

d)  $15.3 - 3.6 = 117$

### Example 2: Add and Subtract Decimal Numbers

Arrange the numbers vertically. Line up the decimal points.



a)  $14.6 + 17.3 = ?$

**Solution**

$$\begin{array}{r} 14.6 \\ + 17.3 \\ \hline 31.9 \end{array} \quad \text{OR}$$

	Tens	Ones	.	Tenths
	1	4	.	6
+	1	7	.	3
=	3	1	.	9

b)  $12.8 - 7.2 = ?$

**Solution**

$$\begin{array}{r} 12.8 \\ - 7.2 \\ \hline 5.6 \end{array} \quad \text{OR}$$

	Tens	Ones	.	Tenths
	1	2	.	8
-		7	.	2
=		5	.	6

### Show You Know

Calculate.

a)  $8.4 + 6.2$

$$\begin{array}{r} 8.4 \\ + 6.2 \\ \hline \end{array}$$

b)  $6.7 - 2.5$

c)  $12.8 - 5.4$

d)  $2.2 + 10.3$

#### overestimate

- an estimate that is larger than the actual answer



#### underestimate

- an estimate that is smaller than the actual answer

## Communicate the Ideas

1. You have \$50.00 to spend on a class party. You want to buy balloons, snacks, drinks, and prizes. Should you overestimate or underestimate the cost of the items? \_\_\_\_\_

Explain your thinking.

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2. Use the place value chart to show how the answer to the subtraction question is correct.

$$1.6 - 0.46 = 1.14$$

Tens	Ones	Decimal Point	Tenths	Hundredths
		.		

## Check Your Understanding

### Practise

3. Estimate to place the decimal point in each answer.

a)  $62.57 + 28.41 = 9098$

b)  $75.83 + 37.9 + 28.00 = 14173$

62.57 is close to \_\_\_\_\_

28.41 is close to \_\_\_\_\_

Think: \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

c)  $0.458 + 0.319 + 0.2 = 0977$

d)  $\$35.61 - \$24.00 = \$1161$

Name: \_\_\_\_\_

Date: \_\_\_\_\_

4. Estimate. Then calculate.

a)  $46.1 + 13.2$

$$\begin{array}{r} 46.1 \rightarrow \\ + 13.2 \rightarrow \underline{\hspace{2cm}} \\ \text{Estimate:} \end{array}$$

$$\begin{array}{r} \text{Calculate: } 46.1 \\ + 13.2 \\ \hline \end{array}$$

b)  $67.4 - 5.1$

$$\begin{array}{r} 67.4 \rightarrow \\ - 5.1 \rightarrow \underline{\hspace{2cm}} \\ \text{Estimate:} \end{array}$$

$$\begin{array}{r} \text{Calculate: } 67.4 \\ - 5.1 \\ \hline \end{array}$$



c)  $47.3 + 10.5$

d)  $87.4 + 5.1$

e)  $15.86 + 7.31$

f)  $34.21 + 8.93$

5. Calculate.

To add or subtract,  
line up the decimal points.

a)  $23.4 + 20.1 + 89.1$

b)  $\$6.78 + \$1.33$

c)  $\$8.95 - \$4.64$

d)  $\$2.06 + \$5.61 + \$1.81$





**Apply**

6. Mary melted 2 pieces of ice for water. How much ice did Mary melt in total?

Mass of ice piece #1: 5.7 kg

Mass of ice piece #2: 4.8 kg

Sentence: Mary melted \_\_\_\_\_ kg of ice.

7. Cindy Klassen won a gold medal in speed skating. Her winning time was 55.27 seconds.

The year before, her world record time was 51.79 seconds.

a) Which time was faster? \_\_\_\_\_

b) What is the difference between the 2 times?

Line up the decimal points and subtract:  
larger number – smaller number

Sentence: The difference between the 2 times is \_\_\_\_\_.

8. A steel bar is cut in 3 pieces. How long was the bar **before** it was cut into 3 pieces?

Length of piece #1: 37.6 cm

Length of piece #2: 49.2 cm

Length of piece #3: 21.5 cm

Sentence: The bar was \_\_\_\_\_ cm long before it was cut.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

9. Twila is looking at 2 bikes. The grey bike costs \$248.90 and the black bike costs \$399.99.



a) *Estimate* how much more the black bike costs.

$$\$399.99 \rightarrow \$400.00$$

$$\$248.90 \rightarrow - \$200.00$$

--

b) *Calculate* how much more the black bike costs.

Sentence: \_\_\_\_\_

c) Is your estimate higher or lower than your calculation? Circle the answer.

HIGHER      LOWER

d) Calculate the difference between the estimate and the calculation.

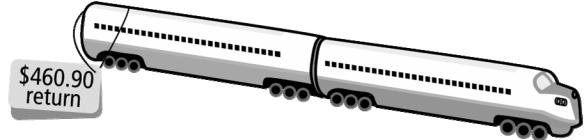
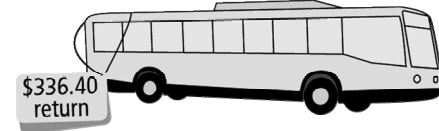
Subtract

	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths
<b>Estimate</b>				.		
<b>Calculation</b>						
<b>Difference in Price</b>						

Sentence: \_\_\_\_\_

# MATH LINK

You're a travel agent!  
 Your grandfather is going with 3 friends to  
 the Québec Winter Carnival.  
 You will help them plan their trip.  
 They can travel by plane, train, or bus.



a) What is the cheapest way to travel?

\_\_\_\_\_

b) What is the most expensive way to travel?

\_\_\_\_\_

c) What is the difference in cost between the most expensive and the cheapest?

most expensive	\$	
cheapest	-\$	
difference	\$	

d) What else should you think about before you decide how to travel?

\_\_\_\_\_  
 \_\_\_\_\_

e) What method of transportation would you choose?

\_\_\_\_\_

f) How much will it cost for 4 people to travel this way? Show your work.

Sentence: \_\_\_\_\_

## 2.2 Warm Up

1. Calculate.

a)  $4.7$   
 $+ 2.4$

b)  $14.9$   
 $+ 1.1$

c)  $49.7$   
 $- 13.4$

d)  $22.7$   
 $- 12.5$



2. Order the numbers 11.8, 22.2, and 11.9 from largest to smallest. Use the place value chart to help you.

Tens	Ones	Decimal Point	Tenths
		.	

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

3. Multiply.

a)  $4 \times 1 =$  \_\_\_\_\_

b)  $4 \times 10 =$  \_\_\_\_\_

c)  $4 \times 100 =$  \_\_\_\_\_

d)  $3 \times 40 =$  \_\_\_\_\_

4. Round to the nearest ten.

a)  $14 \rightarrow$  \_\_\_\_\_

b)  $28 \rightarrow$  \_\_\_\_\_

5. Round to the nearest hundred.

a)  $344 \rightarrow$  \_\_\_\_\_

b)  $289 \rightarrow$  \_\_\_\_\_

c)  $999 \rightarrow$  \_\_\_\_\_

d)  $210 \rightarrow$  \_\_\_\_\_

## 2.2 Multiply Decimal Numbers

### Example 1: Use Estimation to Place the Decimal Point

Estimate to decide where to place the decimal point.

$$2.2 \times 1.8 = 3960$$

#### **Solution**

*Method 1: Use Front-End Estimation and Multiplication*

Think:  $2 \times 1 = 2$

The answer closest to 2 is 3.960.

*Method 2: Use Relative Size Estimation*

Think: 2.2 is close to 2.

1.8 is close to 2.

So,  $2 \times 2 = 4$

The answer closest to 4 is 3.960.

### Show You Know

Without calculating, place the decimal point in the correct position.

**a)**  $2.8 \times 2 = 56$

**b)**  $22.1 \times 3 = 663$

Think: 2.8 is close to \_\_\_\_\_

So, \_\_\_\_\_  $\times 2 =$  \_\_\_\_\_

Place the decimal.

**c)**  $4.4 \times 3.1 = 1364$

**d)**  $7.3 \times 2.5 = 1825$

### Example 2: Multiply Decimals

Multiply the whole numbers. Then place the decimal point using estimation.

$$2.2 \times 1.5 = ?$$

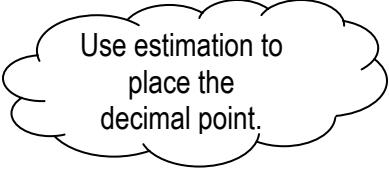
**Solution**

*Step 1: Multiply*

$$\begin{array}{r} 22 \\ \times 15 \\ \hline 110 \leftarrow 22 \times 5 \\ 220 \leftarrow 22 \times 10 \\ \hline 330 \end{array}$$

*Step 2: Estimate*

2.2 is close to 2  
 1.5 is close to 2  
 So,  $2 \times 2 = 4$   
 The answer closest to 4 is 3.30.



### Show You Know

Estimate. Then calculate.

**a)**  $4.6 \times 3.2$

*Estimate:*

4.6 is close to \_\_\_\_\_

$\times 3.2$  is close to \_\_\_\_\_

So, \_\_\_\_\_  $\times$  \_\_\_\_\_  $\approx$  \_\_\_\_\_

*Calculate:*

$$\begin{array}{r} 4.6 \\ \times 3.2 \\ \hline \end{array}$$

**b)**  $11 \times 2.5$

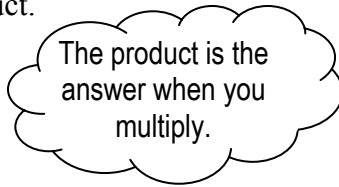
*Estimate:*

*Calculate:*

### Example 3: Multiply Decimals Using a Calculator

Use a calculator to find the product.

$$2.2 \times 1.5 = ?$$



**Solution**

**C** 2.2 **×** 1.5 **=** 3.3

### Show You Know

Find the product. Use a calculator.

a)  $4.6 \times 2.2 =$  \_\_\_\_\_

b)  $4.65 \times 3.7 =$  \_\_\_\_\_

c)  $17.4 \times 2.6 =$  \_\_\_\_\_

d)  $17.78 \times 5.2 =$  \_\_\_\_\_

### Communicate the Ideas

1. Ribbon costs \$3.20 per metre.  
You want to buy 2.6 m of ribbon.

- a) Estimate.  
Then explain which estimate is better.

$$\begin{array}{r} \$3.00 \\ \times 3 \\ \hline \end{array}$$

OR

$$\begin{array}{r} \$3.00 \\ \times 2 \\ \hline \end{array}$$

- b) Calculate the cost of the ribbon.

$$\begin{array}{r} 3.20 \\ \times 2.6 \\ \hline \end{array}$$

Sentence: \_\_\_\_\_

Sentence: \_\_\_\_\_

2. Is the answer correct? Circle YES or NO.

$$2.5 \times 4.6 = 1.15$$

Explain your answer.

\_\_\_\_\_

# Check Your Understanding

## Practise

3. Estimate. Place the decimal point in the correct position.

a) 
$$\begin{array}{r} 12.2 \\ \times 6.8 \\ \hline 8296 \end{array}$$

b) 
$$\begin{array}{r} 48.6 \\ \times 0.9 \\ \hline 4374 \end{array}$$

Think: 12.2 is close to \_\_\_\_\_

6.8 is close to \_\_\_\_\_

So, \_\_\_\_\_  $\times$  \_\_\_\_\_ = \_\_\_\_\_

c) 
$$\begin{array}{r} 8.8 \\ \times 4.7 \\ \hline 4136 \end{array}$$

d) 
$$\begin{array}{r} 11.2 \\ \times 3.4 \\ \hline 3808 \end{array}$$

4. Circle the best estimate.



a) 
$$\begin{array}{r} 4.3 \rightarrow 4 \\ \times 7 \rightarrow \times 7 \\ \hline \end{array}$$

Estimate: 28    30    35

b) 
$$\begin{array}{r} 5.4 \rightarrow \\ \times 5 \rightarrow \times \\ \hline \end{array}$$

Estimate: 25    30    50

c) 
$$\begin{array}{r} 14.2 \rightarrow \\ \times 2.1 \rightarrow \times \\ \hline \end{array}$$

Estimate: 15    28    30

d) 
$$\begin{array}{r} 38.9 \rightarrow \\ \times 7 \rightarrow \times \\ \hline \end{array}$$

Estimate: 250    280    300



5. Calculate.

a) 
$$\begin{array}{r} 1.75 \\ \times 3 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 12.8 \\ \times 0.2 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 3.96 \\ \times 5 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 6.8 \\ \times 3 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 3.6 \\ \times 7 \\ \hline \end{array}$$

f) 
$$\begin{array}{r} 2.1 \\ \times 3.5 \\ \hline \end{array}$$

6. Estimate the product. Then calculate using a calculator.

The product is the answer when you multiply.

a) 
$$\begin{array}{r} 3.89 \rightarrow \\ \times 56 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 3.89 \\ \times 56 \\ \hline \end{array}$$

b) 
$$\begin{array}{r} 13.45 \rightarrow \\ \times 47 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 13.45 \\ \times 47 \\ \hline \end{array}$$

Estimate:

Estimate:

c) 
$$\begin{array}{r} 7.05 \rightarrow \\ \times 2.4 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 7.05 \\ \times 2.4 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 3.89 \rightarrow \\ \times 65 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 3.89 \\ \times 65 \\ \hline \end{array}$$

Estimate:

Estimate:

e) 
$$\begin{array}{r} 4.49 \rightarrow \\ \times 19 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 4.49 \\ \times 19 \\ \hline \end{array}$$

f) 
$$\begin{array}{r} 13.9 \rightarrow \\ \times 25 \rightarrow \times \underline{\quad\quad} \end{array}$$

Calculate: 
$$\begin{array}{r} 13.9 \\ \times 25 \\ \hline \end{array}$$

Estimate:

Estimate:

**Apply**

7. One concert ticket costs \$16.75.  
If 70 tickets are sold, how much money is collected?

a) *Estimate:*  $\$16.75 \rightarrow$   
 $\underline{\quad} \times 70 \rightarrow \underline{\quad} \times 70$

b) *Calculate:*  $\$16.75$   
 $\underline{\quad} \times 70$

Sentence: \_\_\_\_\_

8. Jim runs 5.7 km each day.  
How far does Jim run in 30 days?

a) *Estimate:*

b) *Calculate:*  $5.7 \text{ km}$   
 $\underline{\quad} \times 30 \text{ days}$

Sentence: \_\_\_\_\_

9. You spend \$6.75 for lunch each day.  
How much do you spend in 5 days?

a) *Estimate:*  $\$6.75 \rightarrow$   
 $\underline{\quad} \times 5 \rightarrow$

b) *Calculate:*

Sentence: \_\_\_\_\_

# MATH LINK

There are 3 dancers and 2 coaches in a dance group. You have \$48.00 to buy them each lunch at the cafeteria.

Look at the menu.

- a) What will you buy them for lunch? List the items and their costs.

Item	Cost Per Item

<b>Special</b>		<b>Drinks</b>	
Stir fry	\$5.00	250 mL milk	\$0.90
<b>Sandwiches</b>		500 mL milk	\$1.75
Egg salad	\$2.50	500 mL water	\$1.25
Grilled cheese	\$3.25	250 mL juice	\$1.50
Tuna melt	\$3.50	<b>Other</b>	
Roast beef	\$3.45	Apple or banana	\$0.75
<b>Salads</b>		Orange	\$0.90
Garden salad	\$2.15	Corn chips	\$0.95
Caesar salad	\$3.50	Fries	\$1.95
		Rice and veggies	\$2.70
<i>Prices include tax.</i>			

- b) Estimate the cost of 1 lunch.

- c) How many lunches do you need to buy?

\_\_\_\_\_

Estimate the cost for all the lunches.

- d) Calculate the cost of the lunches.



- e) Did you have enough money? Circle YES or NO.

How do you know? \_\_\_\_\_

\_\_\_\_\_

## 2.3 Warm Up

1. Estimate. Then calculate.

a)  $4.7 \rightarrow$   
 $\times 2 \rightarrow \underline{\quad \times \quad}$   
 Estimate: \_\_\_\_\_

Calculate:  $4.7$   
 $\times 2$

b)  $4.9 \rightarrow$   
 $\times 1.1 \rightarrow \underline{\quad \times \quad}$   
 Estimate: \_\_\_\_\_

Calculate:  $4.9$   
 $\times 1.1$



c) Circle the best term.

These questions are examples of RELATIVE SIZE or FRONT-END estimation.

2. You earn \$5.25 per hour. You worked for 4 hours.  
 How much did you earn?

Sentence: \_\_\_\_\_

3. Divide.

a)  $200 \div 100 = \underline{\hspace{2cm}}$   
 $200 \div 10 = \underline{\hspace{2cm}}$   
 $200 \div 1 = \underline{\hspace{2cm}}$   
 $200 \div 0.1 = \underline{\hspace{2cm}}$   
 $200 \div 0.01 = \underline{\hspace{2cm}}$

b)  $370 \div 100 = \underline{\hspace{2cm}}$   
 $370 \div 10 = \underline{\hspace{2cm}}$   
 $370 \div 1 = \underline{\hspace{2cm}}$   
 $370 \div 0.1 = \underline{\hspace{2cm}}$   
 $370 \div 0.01 = \underline{\hspace{2cm}}$




Describe the pattern that you see.

Describe the pattern that you see.

\_\_\_\_\_

\_\_\_\_\_

 **M E 4.** Estimate. Then place the decimal point.

a)  $83.5 + 15.3 = 988$

Round each number to the nearest 10.  
 Then add or subtract.

b)  $57.7 - 15.6 = 421$



## 2.3 Divide Decimal Numbers

### Example 1: Use Estimation to Place the Decimal Point

Estimate. Then place the decimal point.

$$15.4 \div 3.6 = 4.277$$

#### **Solution**

Use front-end estimation and divide.

Think:  $15.4 \rightarrow 15$


$3.6 \rightarrow 3$

So,  $15 \div 3 = 5$

Use 3 because it will  
divide evenly into 15.

The answer closest to 5 is 4.277.

### Show You Know

Without calculating, place the decimal point in the correct position.  M E

a)  $22.6 \div 2 = 113$

b)  $15.6 \div 3 = 52$

Think:  $22.6 \rightarrow 22$

So,  $22 \div 2 =$  \_\_\_\_\_

c)  $46 \div 2.3 = 200$

d)  $10.2 \div 1.8 = 567$

### Example 2: Divide Decimals

Estimate. Then calculate the quotient.

$$13.6 \div 4 = ?$$

The quotient is the answer when you divide.

#### Solution

Step 1: Estimate

13.6 is close to 12  
So,  $12 \div 4 = 3$

Step 2: Calculate

$$\begin{array}{r} 3.4 \\ 4 \overline{)136} \\ \underline{120} \leftarrow 30 \times 4 \\ 16 \\ \underline{16} \leftarrow 4 \times 4 \\ 0 \end{array}$$

Use estimation to place the decimal point.

### Show You Know

Estimate, then find the quotient.

a)  $2.28 \div 2$

Estimate: 2.28 is close to \_\_\_\_\_

Calculate:  $2 \overline{)2.28}$

\_\_\_\_\_  $\div 2 =$  \_\_\_\_\_

b)  $4.2 \div 2$

### Example 3: Divide Decimals Using a Calculator

Use a calculator to divide.

$$1.36 \div 4 = ?$$

**Solution**

**C** 1.36  $\div$  4 **=** 0.34

### Show You Know

Calculate.



a)  $4.5 \div 0.5 =$  \_\_\_\_\_

b)  $40.5 \div 5 =$  \_\_\_\_\_

c)  $3.2 \div 16 =$  \_\_\_\_\_

d)  $50.4 \div 7.2 =$  \_\_\_\_\_

### Communicate the Ideas

1. Is the decimal point in the answer correct? Explain your answer. Use estimation!

$$\begin{array}{r} 14.1 \\ 3 \overline{)42.3} \end{array}$$

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---

2. Is the decimal point in the answer correct? Explain your answer.

$$\begin{array}{r} 96.0 \\ 8 \overline{)76.8} \end{array}$$

---



---

# Check Your Understanding

## Practise

3. Estimate.

a)  $21.5 \div 2$

$$\text{Estimate} \rightarrow 22 \div 2 = 2 \overline{)22}$$

b)  $17.9 \div 9$

$$\text{Estimate} \rightarrow 18 \div 9 = 9 \overline{)18}$$

c)  $59.6 \div 10$

$$\text{Estimate} \rightarrow \underline{\hspace{2cm}} \div 10 = 10 \overline{)\underline{\hspace{2cm}}}$$

d)  $45.23 \div 8.6$

$$\text{Estimate} \rightarrow \underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \overline{)\underline{\hspace{2cm}}}$$

4. Place the decimal point in the correct position.

Estimate.

a)  $36.6 \div 3 = 122 \rightarrow 3 \overline{)36.6}$  or  $3 \overline{)30}$

b)  $5.92 \div 4 = 148 \rightarrow 4 \overline{)5.92}$  or  $4 \overline{)\underline{\hspace{2cm}}}$

c)  $5.94 \div 6 = 99 \rightarrow 6 \overline{)5.94}$  or  $\underline{\hspace{2cm}} \overline{)\underline{\hspace{2cm}}}$

d)  $64.8 \div 0.8 = 810 \rightarrow 0.8 \overline{)64.8}$  or  $\underline{\hspace{2cm}} \overline{)\underline{\hspace{2cm}}}$



Name: \_\_\_\_\_ Date: \_\_\_\_\_

5. Estimate. Then calculate using a calculator. The first one has been done for you.

Question	Estimate	Calculate
a) $29.6 \div 5.2$	$30 \div 5 = 5 \overset{6}{\underset{0}{)}}{30}$	$29.6 \div 5.2 = 5.69$
b) $119.8 \div 10$	$120 \div 10 = \underline{\hspace{2cm}}$ $\overset{\boxed{\hspace{1cm}}}{\underset{\hspace{1cm}}{)}}{\hspace{1cm}}$	$119.8 \div 10 = \underline{\hspace{2cm}}$
c) $62.6 \div 7.4$	$63 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ $\overset{\boxed{\hspace{1cm}}}{\underset{\hspace{1cm}}{)}}{63}$	
d) $18.5 \div 0.9$		
e) $36 \div 5.5$		

**Apply**

6. A man was paid \$45.50 to move some gravel.  
He charges \$7.00 per hour.  
How long did he work?

$$\begin{array}{r} \boxed{\hspace{1cm}} \\ 7.00 \overline{)45.50} \end{array}$$

Sentence: \_\_\_\_\_

7. Jim runs 55.7 km in 9 hours.  
How many kilometres did he run per hour?

$$9 \overline{)55.8}$$

Kilometres per hour (km/h)  
means the number of kilometres  
travelled in 1 hour.

Sentence: \_\_\_\_\_

8. Calculate to find the quotient.

The quotient is the  
answer when you divide.

a)  $40 \div 10 =$  \_\_\_\_\_

b)  $40 \div 1 =$  \_\_\_\_\_

c)  $40 \div 0.1 =$  \_\_\_\_\_

d)  $40 \div 0.01 =$  \_\_\_\_\_

- e) When you divide by a number smaller than 1, is the answer smaller or larger than the original number? \_\_\_\_\_

## MATH LINK

You have \$70.00 to spend on activities.  
Look at the activities you can choose from.

- a) Choose 2 activities:

\_\_\_\_\_, \_\_\_\_\_

- b) How much do they cost?

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

- c) How much money do you have left over? Show your work.

You have \$70.00. Your activities cost \_\_\_\_\_.

$\$70.00 -$  \_\_\_\_\_  $=$  \_\_\_\_\_

Sentence: \_\_\_\_\_



**Attractive Offers!**

<b>Horseback riding:</b>	<b>\$25 per hour</b>
<b>River rafting:</b>	<b>\$36 per hour</b>
<b>Canoeing:</b>	<b>\$13 per hour</b>
<b>Trail biking:</b>	<b>\$10 per hour</b>

## 2.4 Warm Up

1. Estimate. Then calculate.



a)  $14.9 \rightarrow$  *Calculate:*  $14.9$   
 $\times 2 \rightarrow \times$   $\times 2$   
*Estimate:* \_\_\_\_\_

b)  $17.7 \rightarrow$  *Calculate:*  $17.7$   
 $\times 1.7 \rightarrow \times$   $\times 1.7$   
*Estimate:* \_\_\_\_\_

2. Five juice boxes cost \$1.25. How much does 1 box cost?

$$\$1.25 \div 5 = 5 \overline{)1.25}$$

Sentence: One juice box costs \_\_\_\_\_.

3. Calculate.

a)  $27.6$   
 $+ 15.4$   


---

b)  $\$870.40$   
 $- \$630.20$   


---



4. Estimate. Then place the decimal point.

a)  $23.5 + 15.1 = 386$

b)  $37.6 + 211.1 = 2487$

$23.1 \rightarrow$   
 $+ 15.1 \rightarrow +$  \_\_\_\_\_  
*Estimate:* \_\_\_\_\_

Round each number.

5. Use the order of operations to calculate the answer.

a)  $4 \times 7 - 10$   
 $=$  \_\_\_\_\_  $- 10$   
 $=$  \_\_\_\_\_

b)  $8 + (10 - 9) \times 3$   
 $= 8 +$  \_\_\_\_\_  $\times 3$   
 $= 8 +$  \_\_\_\_\_  
 $=$  \_\_\_\_\_



## 2.4 Order of Operations and Decimal Numbers

### Example 1: Use the Order of Operations

Jim bought 8.5 litres of gas for his car.

One litre costs \$1.12.

Jim also bought 4 drinks.

Each drink costs \$1.69.

How much money did Jim spend?

#### *Solution*

Use a chart to calculate.

Item	Calculation	Cost
Gasoline	$8.5 \times \$1.12$	\$9.52
Drinks	$4 \times \$1.69$	\$6.76
Total		\$16.28

$$\begin{aligned} & (8.5 \times \$1.12) + (4 \times \$1.69) \\ &= \$9.52 + \$6.76 \\ &= \$16.28 \end{aligned}$$

### Show You Know

Calculate.

a)  $(2.1 \times 4) - (1.2 \times 2)$

= \_\_\_\_\_ - \_\_\_\_\_

= \_\_\_\_\_

b)  $(6.3 \times 2) - (4.2 \div 2)$

= \_\_\_\_\_ - \_\_\_\_\_

= \_\_\_\_\_

### Example 2: Apply the Order of Operations

Use the order of operations to calculate.

$$5.2 \div 4 + 2.1 = ?$$

**Solution**

$$\begin{array}{ll}
 5.2 \div 4 + 2.1 & \text{Divide first.} \\
 \swarrow \searrow & \\
 = 1.3 + 2.1 & \text{Add.} \\
 = 3.4 &
 \end{array}$$

### Show You Know

Calculate.

a)  $2.5 + 5 \times 1.6$       Multiply first.      b)  $3 \times 2.1 + 6.4$

$$= 2.5 + \underline{\hspace{2cm}} \quad \text{Add.}$$

$$= \underline{\hspace{2cm}}$$

### Communicate the Ideas

1.  $1.7 + 6 \div 2 = 3.85$

Should you add (+) or divide ( $\div$ ) first? \_\_\_\_\_

Is the answer correct? Circle YES or NO.  
Show your work.

Use the order of operations.

2.  $4.3 - 3 \div 3 = 1.1$

Should you subtract (-) or divide ( $\div$ ) first? \_\_\_\_\_

Is this answer correct? Circle YES or NO.  
Show your work.

# Check Your Understanding

## Practise

3. Jens wanted to go fishing. He went to the store and bought  
 4 floats at 80¢ each  
 12 leaders at 20¢ each

a) Does the expression  $(4 \times \$0.80) + (12 \times \$0.20)$  show how much Jens spent? Circle YES or NO.

b) Calculate:

$$(4 \times \$0.80) + (12 \times \$0.20)$$

$$= \$3.20 + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

c) The cost of Jens's fishing equipment is \$\_\_\_\_\_.

4. Calculate. Use the order of operations.

a)  $0.5 \times 100 \div 0.1$

b)  $6 \div (2.4 + 3.6) \times 2$

Do brackets first.

5. Are the answers below correct? Circle YES or NO.  
 Show how you know.

a)  $6 + 2.5 \times 3 = 14.7$       YES      NO

$$6 + \underbrace{2.5 \times 3}_{\text{Multiply first.}}$$

$$= 6 + \underline{\hspace{2cm}}$$


$$= \underline{\hspace{2cm}}$$

Step 1: Do operations in brackets	( )
Step 2: Multiply or divide in order from left to right.	$\times, \div$
Step 3: Add or subtract in order from left to right.	$+, -$

b)  $4 \times 3 + 1.5 = 14.5$       YES      NO

c)  $(4.2 + 2) \times 2 = 1.6$       YES      NO

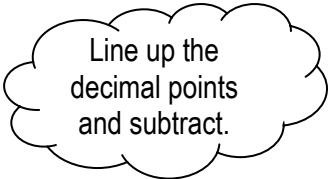
**Apply**

6. Ruben wants to earn \$155.00 this week.   
 His job pays \$7.75 per hour.  
 How many hours must he work?



Sentence: \_\_\_\_\_

7. Charlene bought 2 video games for a total cost of \$56.89.  
 One video game cost \$21.94.  
 How much did the second video game cost?



Sentence: \_\_\_\_\_

8. Estimate the total cost.
- a) 8 oranges at \$0.71 each                      b) 5 boxes of dog treats at \$4.89 a box

$$\begin{array}{r} \$0.71 \rightarrow \$1 \\ \times 8 \rightarrow \times 8 \end{array}$$

*Estimate:*

- c) 5 cans of meat at \$5.78 each                      d) 3 books at \$6.95 each



9. Write the missing number in the blank.

a) \_\_\_\_\_ +  $4.8 \times 4 = 20$  [0.8 or 8.0]

**Guess and Check:**

Try 0.8.

$0.8 + 4.8 \times 4$ $= 0.8 + \underline{\hspace{2cm}}$ Multiply. $= \underline{\hspace{2cm}}$
--

**OR**

Try 8.0.

$8.0 + 4.8 \times 4$ $= 8.0 + \underline{\hspace{2cm}}$ Multiply. $= \underline{\hspace{2cm}}$
--

b)  $4.5 \div 5 + \underline{\hspace{2cm}} = 3$  [1.2 or 2.1] Divide first.

--

**OR**

--

c)  $4.5 \times 2 - \underline{\hspace{2cm}} = 2.5$  [6.5 or 5.5]

--

**OR**

--

d)  $3.5 + 4 \div \underline{\hspace{2cm}} = 5.5$  [2.0 or 2.5]

--

**OR**

--



- 10.** Sam buys  
 4 sheets of poster board at \$1.87 each  
 3 erasers at 69¢ each  
 5 pencils at 36¢ each



a) *Estimate* the total cost.

$$4 \times \$1.87 \rightarrow 4 \times \$2.00 = \underline{\hspace{2cm}}$$

$$3 \times \$0.69 \rightarrow 3 \times \underline{\hspace{1cm}} = \underline{\hspace{2cm}}$$

$$5 \times \$0.36 \rightarrow 5 \times \$0.50 = \underline{\hspace{2cm}}$$

$$\text{Total Estimate} = \underline{\hspace{2cm}}$$

b) *Calculate* the total cost.

$$(4 \times \$1.87) + (3 \times \$0.69) + (5 \times \$0.36)$$

$$= \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$$

$$= \underline{\hspace{2cm}}$$



Sentence: \_\_\_\_\_

- 11.** Are the brackets below in the correct place? Circle YES or NO.  
 Show how you know.



Use the order of operations.

a)  $(7 + 30) \times 0.5 = 18.5$     YES    NO                      b)  $6 + (3 \times 0.2) = 1.8$     YES    NO

c)  $7.5 \div (0.5 + 2) = 3$     YES    NO                      d)  $80 \div (4 + 6) = 26$     YES    NO



# 2 Chapter Review

## Key Words

For #1 to #5 write the number that matches the description.

- |  |       |                     |                       |
|--|-------|---------------------|-----------------------|
| 1. The order of steps you do to solve a math expression. | _____ | estimate            | <input type="radio"/> |
| 2. To approximate an answer.                             | _____ | calculate           |                       |
| 3. To find the exact answer.                             | _____ | quotient            |                       |
| 4. The answer when you multiply.                         | _____ | order of operations |                       |
| 5. The answer when you divide.                           | _____ | product             |                       |

### 2.1 Add and Subtract Decimal Numbers

6. Estimate. Then place the decimal point in the correct position.

a)  $14.5 + 11.3 = 258$

b)  $17.8 - 12.7 = 51$

14.5 is close to \_\_\_\_\_

11.3 is close to \_\_\_\_\_

Think: \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

d)  $75.83 - 23.00 = 5283$

c)  $62.57 + 28.41 = 9098$

e)  $324.4 + 125.2 = 4496$

f)  $322.7 - 120.5 = 2022$

Line up decimal points.

7. Estimate. Then calculate.

a)  $46.1 + 13.2$

$$\begin{array}{r} 46.1 \rightarrow 46 \\ + 13.2 \rightarrow +13 \\ \hline \end{array} \quad \text{Calculate: } \begin{array}{r} 46.1 \\ + 13.2 \\ \hline \end{array}$$

Estimate:

b)  $67.4 - 5.1$

$$\begin{array}{r} 67.4 \rightarrow \\ - 5.1 \rightarrow \\ \hline \end{array} \quad \text{Calculate: } \begin{array}{r} 67.4 \\ - 5.1 \\ \hline \end{array}$$

Estimate:

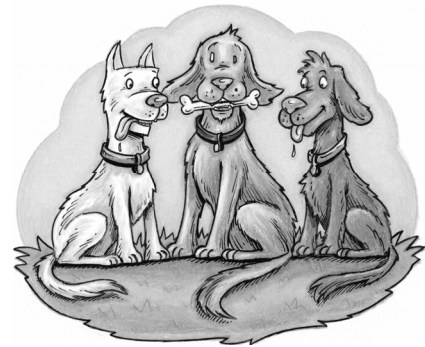
c)  $47.6 + 10.5$

d)  $87.7 - 5.1$

8. Jordan has 3 dogs:

Max has a mass of 28.2 kg  
 Sam has a mass of 31.7 kg  
 Lucy has a mass of 26.4 kg

Line up the  
 decimals points  
 and add.



What is the total mass of the 3 dogs?

Sentence: \_\_\_\_\_

## 2.2 Multiply Decimal Numbers

9. Without calculating, place the decimal point in the correct position.

a)  $12.2$   
 $\times 6.8$   
 $\hline 8296$

12.2 is close to 10  
 6.8 is close to 7

$10 \times 7 = \underline{\hspace{2cm}}$

b)  $48.6$   
 $\times 0.9$   
 $\hline 4374$

c)  $8.8$   
 $\times 4.7$   
 $\hline 4136$

d)  $11.2$   
 $\times 3.4$   
 $\hline 3808$

Name: \_\_\_\_\_ Date: \_\_\_\_\_

10. Circle the best estimate.

a)  $5.3 \rightarrow 5$   
 $\times 7 \rightarrow \times 7$

Estimate: 28 30 35

b)  $5.7 \rightarrow$   
 $\times 5 \rightarrow \times$

Estimate: 25 30 50



c)  $6.2 \rightarrow$   
 $\times 7 \rightarrow \times$

Estimate: 28 30 42

d)  $19.9 \rightarrow$   
 $\times 4 \rightarrow \times$

Estimate: 80 90 100

11. Calculate.

a)  $1.25$   
 $\times 4$

b)  $6.2$   
 $\times 3$

c)  $3.56$   
 $\times 5$

d)  $12.8$   
 $\times 1.2$

12. A kitten has a mass of 1.5 kg.  
An adult cat has a mass 2.5 times the mass of the kitten.  
What is the mass of the adult cat?



Sentence: \_\_\_\_\_

13. It costs \$3.99 to rent a movie.  
You rent 5 movies.  
How much do you pay?



Sentence: \_\_\_\_\_

### 2.3 Divide Decimal Numbers

14. Place the decimal point in the correct position.

a)  $36.6 \div 3 = 122 \rightarrow 3 \overline{)36.6}^{122}$

b)  $6.92 \div 4 = 173 \rightarrow 4 \overline{)6.92}^{173}$

c)  $33.96 \div 6 = 566 \rightarrow 6 \overline{)33.96}^{566}$

d)  $64.8 \div 0.4 = 1621 \rightarrow 0.4 \overline{)64.84}^{1621}$

15. Estimate, then calculate using a calculator. The first one has been done for you.

Question	Estimate	Calculate
a) $29.6 \div 5.2$	$30 \div 5 = 5 \overline{)30}^6$	$29.6 \div 5.2 = 5.69$
b) $29.8 \div 10$	$30 \div 10 = \underline{\hspace{2cm}}$ $\overline{\hspace{2cm}} \overline{\hspace{2cm}}$	$29.8 \div 10 = \underline{\hspace{2cm}}$
c) $12.4 \div 3.2$	$12 \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$ $\overline{\hspace{2cm}} \overline{\hspace{2cm}}$ $\hspace{10em})12$	
d) $18.5 \div 0.5$		
e) $36.6 \div 6.1$		

16. Ken mailed a 12.75 kg package of skates to his brother.  
It cost \$51.00 to mail the skates.  
How much did Ken pay per kilogram to mail the skates?



Find the cost to mail 1 kg.

Sentence: \_\_\_\_\_

**2.4 Order of Operations and Decimal Numbers**

17. Is the answer correct? Circle YES or NO.

- a)  $4.5 + 2.5 \times 3 = 14.7$       YES      NO      b)  $4 \times 1.5 + 3.5 = 9.5$       YES      NO

$$4.5 + \underbrace{2.5 \times 3}$$

$$= 4.5 + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

$$\underbrace{4 \times 1.5} + 3.5$$

$$= \underline{\hspace{2cm}} + 3.5$$

$$= \underline{\hspace{2cm}}$$

18. Calculate. Round to the nearest tenth (1 decimal place).

a)  $3.5 + \underbrace{2.5 \times 2.5}$

$$= 3.5 + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

b)  $2.6 - \underbrace{3.3 \div 3}$

$$= \underline{\hspace{2cm}} - \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

19. The costs to go to a movie are

Adults: \$8.50

Children: \$4.50

Seniors: \$6.25

Yesterday, 20 adults, 10 children, and 30 seniors went to the movie.

- a) Is this expression for the total cost correct? Circle YES or NO.

$$(20 \times \$8.50) + (10 \times \$4.50) + (30 \times \$6.25)$$

- b) Calculate the total cost to go to the movie.

$$(20 \times \$\underline{\hspace{2cm}}) + (10 \times \$\underline{\hspace{2cm}}) + (30 \times \$\underline{\hspace{2cm}})$$

$$= \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Sentence: \_\_\_\_\_

# 2 Practice Test

For #1 to #3, choose the best answer.

1. Calculate  $4.85 + 0.5 - 3.2$ .  
A 215      B 21.5      C 2.15      D 0.215
2. Calculate  $98.2 - 4.8$ .  
A 93.4      B 103      C 9.34      D 934
3. Calculate  $8.5 \times 0.7$ .  
A 59.5      B 12.14      C 5.95      D 1.214

4. Without calculating, place the decimal point in the correct position.

a)  $11.5 + 11.2 = 227$

b)  $17.3 + 22.6 = 399$

11.5 is close to \_\_\_\_\_

Estimate!

11.2 is close to \_\_\_\_\_

Think:

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

c)  $32.55 - 19.61 = 1294$

d)  $165.13 - 113.12 = 5201$

## 5. Estimate. Then calculate.

$$\begin{array}{r} \text{a) } 36.4 \rightarrow \\ + \underline{22.2} \rightarrow \end{array}$$

Estimate:

$$\begin{array}{r} \text{Calculate: } 36.4 \\ + \underline{22.2} \end{array}$$

$$\begin{array}{r} \text{b) } 57.6 \rightarrow \\ - \underline{15.4} \rightarrow \end{array}$$

Estimate:

$$\begin{array}{r} \text{Calculate: } 57.6 \\ - \underline{15.4} \end{array}$$

$$\begin{array}{r} \text{c) } 147.6 \rightarrow \\ + \underline{111.5} \rightarrow \end{array}$$

Estimate:

$$\begin{array}{r} \text{Calculate: } 147.6 \\ + \underline{111.5} \end{array}$$

$$\begin{array}{r} \text{d) } 96.7 \rightarrow \\ - \underline{45.4} \rightarrow \end{array}$$

Estimate:

$$\begin{array}{r} \text{Calculate: } 96.7 \\ - \underline{45.4} \end{array}$$

## 6. Estimate. Then place the decimal point in the correct position.

$$\text{a) } 14.7 \times 2.2 = 3234$$

$$\begin{array}{r} 14.7 \rightarrow 10 \\ \times \underline{2.2} \rightarrow \times \underline{2} \end{array}$$

Estimate:

$$\text{b) } 23.4 \times 1.2 = 2808$$

## 7. Calculate.

$$\begin{array}{r} \text{a) } 3.22 \\ \times \underline{4} \end{array}$$

$$\begin{array}{r} \text{b) } 3.35 \\ \times \underline{3.1} \end{array}$$



8. Estimate. Then place the decimal point in the correct position.

a)  $36.6 \div 3 = 12.2 \rightarrow 3 \overline{)36}^{12}$

b)  $8.94 \div 4 = 2.235 \rightarrow 4 \overline{)8}^{\boxed{\phantom{000}}}$

c)  $12.66 \div 3 = 4.22 \rightarrow \underline{\hspace{2cm}} \overline{)12}^{\boxed{\phantom{000}}}$

d)  $198 \div 0.8 = 247.5 \rightarrow 1 \overline{) \underline{\hspace{2cm}}}^{\boxed{\phantom{000}}}$

9. Calculate.

a)  $12.3 \div 0.4 = \underline{\hspace{2cm}}$

b)  $28.8 \div 4 = \underline{\hspace{2cm}}$

10. Is the answer correct? Circle YES or NO.

a)  $6.5 + 2.5 \times 2.5 = 12.75$     YES    NO

b)  $1.2 \times 1.5 + 3.5 = 5.5$     YES    NO

$6.5 + 2.5 \times 2.5$

$= 6.5 + \underline{\hspace{2cm}}$

$= \underline{\hspace{2cm}}$

c)  $6 \div 2 + 7.5 = 10.25$     YES    NO

d)  $(5.2 + 2.8) \times 2.2 = 17.6$     YES    NO

11. Calculate. Show your steps.

a)  $3.7 + 2.5 \div 5$

$= 3.7 + \underline{\hspace{2cm}}$

$= \underline{\hspace{2cm}}$

b)  $3.6 - 2 \times 1.2$

c)  $7.1 + 9.3 \div 3$

d)  $5.7 - 2.2 \times 3.5$

Name: \_\_\_\_\_ Date: \_\_\_\_\_

- 12.** Jordan has 3 cats:  
Felix has a mass of 2.2 kg.  
Jessie has a mass of 3.5 kg.  
Max has a mass of 1.7 kg.  
What is the total mass of the 3 cats?



Sentence: \_\_\_\_\_

- 13.** A puppy has a mass of 1.8 kg.  
An adult dog has a mass 3 times the mass of the puppy.  
What is the mass of the adult dog?

Sentence: \_\_\_\_\_



- 14.** Elizabeth mailed a 14.7-kg package of candy to her brother.  
The cost to mail 1 kg of candy is \$3.50.  
How much did Elizabeth pay to mail the candy?

Sentence: \_\_\_\_\_



## WRAP IT UP!

You are planning your dream vacation to Ottawa.

a) Which method of transportation will you choose? Write an X beside your choice.

\_\_\_\_\_ Plane costs: \$600.00 return

\_\_\_\_\_ Train costs: \$1000.00 return

\_\_\_\_\_ Bus costs: \$700.00 return

b) A hotel costs \$200.00 per night. How much will it cost to stay for 6 nights?

\_\_\_\_\_ nights  $\times$  \$\_\_\_\_\_ per night = \$\_\_\_\_\_

c) You can do 3 of these 5 activities while you are in Ottawa.

- Tour the Parliament Building: Free
- Visit the Canadian Museum of Civilization: \$8.00
- Rent skates at the Rideau Canal: \$10.00
- Downhill ski: \$25.00
- See an Ottawa Senators hockey game: \$90.00

Choose 3 activities. Complete the table.

Activity	Cost
1.	
2.	
3.	
<b>Total Cost</b>	

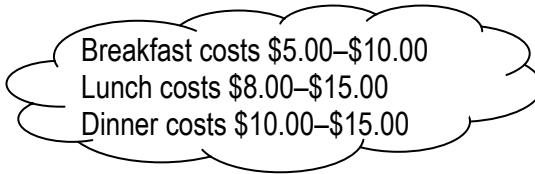
d) Estimate the cost of meals for 1 day.

Breakfast: \$ \_\_\_\_\_

Lunch: \$ \_\_\_\_\_

Dinner: \$ \_\_\_\_\_

**Total:**



e) What is the total cost of meals for 1 week?

$7 \times \$$ \_\_\_\_\_ = \$\_\_\_\_\_

f) Calculate the total cost of your vacation.

\$\_\_\_\_\_ + \$\_\_\_\_\_ + \$\_\_\_\_\_ + \$\_\_\_\_\_ = \_\_\_\_\_  
 (transportation) (hotel) (activities) (meals) (Total cost)

# Key Word Builder

## Word Scramble

Unscramble the letters for each word. Use the clues to help you.

Clues	Scramble	Answer
The answer when you multiply.	dpcuort	p _____ t
There is a _____ point between the 1 and 5 in 21.5.	cedmila	d _____ l
Addition, subtraction, multiplication, and division are _____.	tirospoea	o _____ t _____ s
The answer when you divide.	toeutinq	q _____ t
The answer when you subtract.	fdieerfnce	d _____ e
To find the product you must _____.	iltymlup	m _____ y
An estimate that is larger than the actual answer.	erseitmaetvo	o _____ e _____ e
To approximate an answer.	mtianietos	e _____ m _____ n
You can use a _____ to help you find an answer when dividing.	ctoaulaclr	c _____ c _____ r

# Math Games

## Decimal Delights

### Materials

- 1 coin per group

Use the Addition Game Board to play the Decimal Delights game.  
The person closest to 100, without going over, wins!

### Addition Game Board

59.2	0.2	34.43	1.06	99.9	9.14
22.4	15.2	91	26.2	44.5	16
73.2	58.99	81.3	33.6	37.6	53.1
27	17.9	10.6	5.86	7.05	0.87
0.04	66.6	0.45	47.7	6.41	11.1
70.3	18.03	41.9	3.27	0.09	60.27

### Rules

1. Flip the coin to see who goes first.
2. Choose 2 numbers from the board and circle them.  
Make sure the numbers don't add up to more than 100!  
A sum above 100 scores 0.
3. Write the numbers in Column 1 of your score sheet.
4. Add the numbers together.  
Write the sum in Column 2 of your score sheet.
5. Estimate which number your sum is closest to.  
Write your estimate in Column 3.
6. Write the number of points you scored in Column 4.
7. Now it's your partner's turn!
8. Keep playing until there are no numbers left to circle on the board.
9. The person with the most points wins.

#### Points

Estimate close to:

**0 = 0** points

**20 = 1** point

**40 = 2** points

**60 = 3** points

**80 = 2** points

**100 = 1** point

**over 100 = 0** points

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Addition Score Sheet

Numbers From the Board	Add Them	Estimate of My Total Points: 0, 20, 40, 60, 80, or 100	Points
<b>My Total Points:</b>			

**Points**  
 Estimate close to:  
**0 = 0** points  
**20 = 1** point  
**40 = 2** points  
**60 = 3** points  
**80 = 2** points  
**100 = 1** point  
**over 100 = 0** points



# Challenge in Real Life

## Raising Money for Charity



### Materials

- catalogues and newspaper flyers
- poster board
- coloured pencils or markers

You are buying prizes for a charity.  
 You have \$1000 to spend (not including tax).  
 You want to spend as close to \$1000 as possible.

Choose at least 10 different items.

The prizes should be things that you and your friends would enjoy.  
 You can buy clothes, electronics, toys, games, sports equipment, and so on.

### 1. Complete the chart.

Use catalogues, the Internet, or newspaper flyers to find the cost of each of your prizes.

Prize	Cost of Prize

Name: \_\_\_\_\_ Date: \_\_\_\_\_

2. Make a poster that shows the items you chose. Include the cost of each item.
3. What is the estimated total cost for your prizes? Show your work.



4. What is the actual total cost for your prizes? Show your work.



5. How close are you to the \$1000 limit? Show your work.





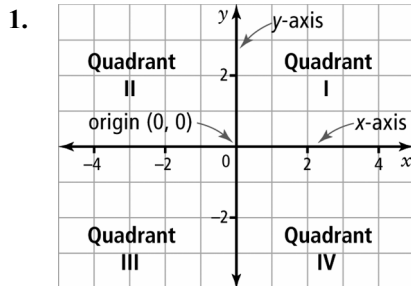
# Answers

## Get Ready, pages 58-59

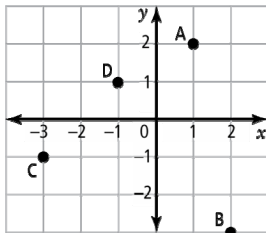
Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
1	3	4	9	.	5	2
		4	5	.	0	6
	1	0	0	.	0	5
		0	0	.	4	5

2. a) 2.4, 2, 1.9 b) 365.7, 360.9, 35.8  
 3. a) 110; 103 b)  $70 - 40 = 30$ ; 35 c) 250; 245  
 4. a) 12; 8 b) 3; 18 c) 12; 14 d) 2; 16

### 2.1 Warm Up, page 60



2. a)–b) Answers will vary. Example:



- c) A (1, 2), B (2, -3), C (-3, -1), D (-1, 1)  
 3. a) tens b) tenths c) hundredths d) tenths  
 e) thousandths f) ones  
 4. a) 40 b) 200 c) 3 d) 60

### 2.1 Add and Subtract Decimal Numbers, pages 61–67

#### Example 1: Show You Know

- a) 10; 9.87 b) 8.32 c) 22.8 d) 11.7

#### Example 2: Show You Know

- a) 14.6 b) 4.2 c) 7.4 d) 12.5

#### Communicate the Ideas

1. Answers may vary. Example: overestimate. I may need to pay taxes on some or all of the items.

2.

Tens	Ones	Decimal Point	Tenths	Hundredths
	1	.	6	
	0	.	4	6
	1	.	1	4

#### Practise

3. a) 60; 30;  $60 + 30 = 90$ ; 90.98 b) 141.73 c) 0.977  
 d) \$11.61  
 4. Estimates may vary. a)  $50 + 10 = 60$ ; 59.3 b)  $70 - 5 = 65$ ;  
 62.3 c) 60; 57.8 d) 95; 92.5 e) 30; 23.17 f) 40; 43.14  
 5. a) 132.6 b) \$8.11 c) \$4.31 d) \$9.48

## Apply

6. Mary melted 10.5 kg of ice.  
 7. a) 51.79 b) The difference is 3.48 seconds.  
 8. The bar was 108.3 cm long before it was cut.  
 9. a) \$200.00 b) The black bike costs \$151.09 more than the grey bike. c) HIGHER  
 d)

	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths
Estimate	2	0	0	.	0	0
Actual Difference	1	5	1	.	0	9
Difference in Price		4	8	.	9	1

The difference in price between the actual difference and my estimate is \$48.91.

## Math Link

- a) by bus b) by plane  
 c)  $\$595.00 - \$336.40 = \$258.60$   
 d) Answers may vary. Example: I would think about which way is most comfortable, which takes the least or most amount of time, how many people are travelling, the length of time of the stay, etc.  
 e) Answers may vary. Example: I chose the train because I have never been on a long train trip.  
 f) Answers may vary depending on the method chosen. Example: plane: \$2380.00; bus: \$1345.60; train: \$1843.60.

### 2.2 Warm Up, page 68

1. a) 7.1 b) 16.0 c) 36.3 d) 10.2  
 2. 22.2, 11.9, 11.8  
 3. a) 4 b) 40 c) 400 d) 120  
 4. a) 10 b) 30

5. a) 300 b) 300 c) 1000 d) 200

### 2.2 Multiply Decimal Numbers, pages 69–75

#### Example 1: Show You Know

- a) 3; 6; 5.6 b) 66.3 c) 13.64 d) 18.25

#### Example 2: Show You Know

Estimates may vary. a) 5; 3;  $5 \times 3 = 15$ ; 14.72 b) 30; 27.5

#### Example 3: Show You Know

- a) 10.12 b) 17.205 c) 45.24 d) 92.456

#### Communicate the Ideas

1. a) The estimate of  $3 \times \$3.00$  is better. b) \$8.32  
 2. No. 2.5 is close to 3 and 4.6 is close to 5, so the answer should be close to  $3 \times 5 = 15$ .

### Practise

3. a) 12; 7;  $12 \times 7 = 84$ ; 82.96 b) 43.74 c) 41.36 d) 38.08  
4. a) 28 b) 25 c) 28 d) 280  
5. a) 5.25 b) 2.56 c) 19.8 d) 20.4 e) 25.2 f) 7.35  
6. Estimates may vary. a)  $4 \times 60 = 240$ ; 217.84  
b)  $13 \times 50 = 650$ ; 632.15 c) 14; 16.92 d) 280; 252.85  
e) 100; 85.31 f) 350; 347.5

### Apply

7. a) Estimates may vary. \$1400.00 b) The amount of money collected for the tickets sold is \$1172.50.  
8. a) Estimates may vary. Example: 180 km  
b) Jim runs 171 km in 30 days.  
9. a) Estimates may vary. Example: \$35.00  
b) In five days I spend \$33.75 on lunch.

### Math Link

Answers may vary. Example:

a)

Item	Cost Per Item
Stir fry	\$5.00
Garden salad	\$2.15
Juice	\$1.50
Orange	\$0.90

- b) \$10.00 c) I need to buy 5 lunches; \$50.00 d) \$47.75  
e) Yes. Total cost for lunches: \$47.75; The cost was less than \$48.00.

### 2.3 Warm Up, page 76

1. a)  $5 \times 2 = 10$ ; 9.4 b)  $5 \times 1 = 5$ ; 5.39 c) RELATIVE SIZE  
2. I earned \$21.00.  
3. a) 2, 20, 200, 2000, 20 000  
Answers may vary. Example: As you divide by a smaller number, the answer gets bigger.  
b) 3.7, 37, 370, 3700, 37 000  
Answers may vary. Example: The decimal point moves and zeroes get added as you divide by smaller and smaller numbers.  
4. a) 98.8 b) 42.1

### 2.3 Divide Decimal Numbers, pages 77–82

#### Example 1: Show You Know

- a) 11; 11.3 b) 5.2 c) 20.0 d) 5.67

#### Example 2: Show You Know

Estimates may vary. a) 2; 1; 1.14 b) 4; 2; 2.1

#### Example 3: Show You Know

- a) 9 b) 8.1 c) 0.2 d) 7

### Communicate the Ideas

1. Yes. Explanations will vary. Example: Using estimation,  $45 \div 3 = 15$ , which is close to 14.1.  
2. No. Explanation will vary. Example: Using estimation,  $80 \div 8 = 10$ , which is closer to 9.6 than to 96.0.

### Practise

3. a) 11 b) 2 c) 60; 6 d)  $45 \div 9 = 5$   
4. a) 12.2 b) 1.48 c) 0.99 d) 81.0  
5. b) Estimates may vary. 12; 11.98 c)  $63 \div 7 = 9$ ; 8.46  
d) 19; 20.6 e) 6; 6.5

### Apply

6. The man took 6.5 hours to move the gravel.  
7. Jim runs 6.2 km/h.  
8. a) 4 b) 40 c) 400 d) 4000 e) larger

### Math Link

Answers may vary. Example:

- a) Activities: horseback riding and river rafting  
b) Costs:  $\$25 + \$36 = \$61$   
c) Money left over:  $\$70 - \$61 = \$9$

### 2.4 Warm Up, page 83

1. Estimates may vary. a)  $15 \times 2 = 30$ ; 29.8 b)  $18 \times 2 = 36$ ; 30.09  
2. One juice box costs \$0.25 or 25¢.  
3. a) 43 b) \$240.20  
4. a)  $23 + 15 = 38$ ; 38.6 b) 248.7  
5. a) 28; 18 b) 1; 3; 11

### 2.4 Order of Operations and Decimal Numbers, pages 84–89

#### Example 1: Show You Know

- a)  $8.4 - 2.4 = 6.0$  b)  $12.6 - 2.1 = 10.5$

#### Example 2: Show You Know

- a)  $2.5 + 8 = 10.5$  b) 12.7

### Communicate the Ideas

1. divide ( $\div$ ); NO;  $1.7 + 3 = 4.7$   
2. divide ( $\div$ ); NO;  $4.3 - 1 = 3.3$

### Practise

3. a) YES b)  $\$3.20 + \$2.40 = \$5.60$   
c) The cost of Jens's fishing equipment is \$5.60.  
4. a) 500 b) 2  
5. a) NO;  $6 + 7.5 = 13.5$  b) NO;  $12 + 1.5 = 13.5$   
c) NO;  $2.1 \times 2 = 4.2$

### Apply

6. Ruben must work 20 hours to earn \$155.00.  
7. The second video game cost \$34.95.  
8. a) Estimates may vary. \$8.00 b) \$25.00 c) \$30.00 d) \$21.00  
9. a) 0.8 b) 2.1 c) 6.5 d) 2.0  
10. a) \$8.00; \$1.00; \$3.00; \$2.50; Total: \$13.50  
b)  $\$7.48 + \$2.07 + \$1.80 = \$11.35$ ; Sam's total cost is \$11.35.  
11. a) YES b) NO c) YES d) NO

### Chapter Review, pages 90–94

1. order of operations  
2. estimate  
3. calculate  
4. product  
5. quotient  
6. Estimates may vary. a) 15; 11; 26; 25.8 b) 5.1 c) 90.98  
d) 52.83 e) 449.6 f) 202.2  
7. Estimates may vary. a) 59; 59.3 b)  $67 - 5 = 62$ ; 62.3  
c) 60; 58.1 d) 85; 82.6  
8. The total mass of the three dogs is 86.3 kg.  
9. a) 70; 82.96 b) 43.74 c) 41.36 d) 38.08

10. a) 35 b) 30 c) 42 d) 80  
 11. a) 5 b) 18.6 c) 17.8 d) 15.36  
 12. The mass of the male cat is 3.75 kg.  
 13. I pay \$19.95 to rent five movies.  
 14. a) 12.2 b) 1.73 c) 5.66 d) 162.1  
 15. b) 3; 2.98 c)  $12 \div 3 = 4$ ; 3.88 d)  $19 \div 0.5 = 38$ ; 37  
 e)  $36 \div 6 = 6$ ; 6  
 16. Ken paid \$4.00 per kilogram to mail the skates.  
 17. a) NO;  $4.5 + 7.5 = 12.0$  b) YES;  $6 + 3.5 = 9.5$   
 18. a) 9.8 b) 1.5  
 19. a) YES b)  $\$170.00 + \$45.00 + \$187.50 = \$402.50$ ;  
 The total cost to go to the movie was \$402.50.

**Practise Test, pages 95–98**

1. C 2. A 3. C  
 4. a)  $12 + 11 = 22.7$  b) 39.9 c) 12.94 d) 52.01  
 5. Estimates may vary. a) 55; 58.6 b) 45; 42.2  
 c) 250; 259.1 d) 50; 51.3  
 6. a) 20; 32.34 b) 28.08  
 7. a) 12.88 b) 10.385  
 8. a) 12; 12.2 b) 2; 2.235 c)  $12 \div 3 = 4$ ; 4.22  
 d)  $200 \div 1 = 200$ ; 247.5  
 9. a) 30.75 b) 7.2  
 10. a) YES;  $6.5 + 6.25 = 12.75$  b) NO;  $1.8 + 3.5 = 5.3$   
 c) NO;  $3 + 7.5 = 10.5$  d) YES;  $8 \times 2.2 = 17.6$   
 11. a)  $3.7 + 0.5 = 4.2$  b) 1.2 c) 10.2 d) 12.25  
 12. The mass of the three cats is 7.4 kg.  
 13. The mass of the adult dog is 5.4 kg.  
 14. Elizabeth paid \$51.45 to send the candy.

**Wrap It Up!, page 99**

- a) Answers will vary. Example: plane  
 b) \$200.00; 6; \$1200.00  
 c) Answers will vary. Example:

Activity	Cost
1. Canadian Museum of Civilization	\$8.00
2. Skating on Rideau Canal	\$10.00
3. Parliament Building	FREE
<b>Total Cost</b>	<b>\$18.00</b>

- d) Answers will vary. Example:  $\$6.00 + \$10.00 + \$15.00 = \$31.00$   
 e) Answers will vary. Example:  $7 \times \$31.00 = \$217.00$   
 f) Answers will vary. Example:  $\$600.00 + \$1200.00 + \$18.00 + \$217.00 = \$2035.00$

**Key Word Builder, page 100**

product  
 decimal  
 operations  
 quotient  
 difference  
 multiply  
 overestimate  
 estimate  
 calculator