

Lesson 5-2

Example 1

ARCHEOLOGY What is the width of the fence around an archeological dig if the region enclosed is a rectangle with a perimeter of 74 m and a length of 26.8 m?

Solution

The situation involves perimeter. Use the formula $P = 2\ell + 2w$.

$$\begin{aligned}
 P &= 2\ell + 2w \\
 74 &= 2(26.8) + 2w && \text{Substitute.} \\
 74 &= 53.6 + 2w && \text{Subtract 53.6 from each side.} \\
 20.4 &= 2w && \text{Divide each side by 2.} \\
 10.2 &= w
 \end{aligned}$$

The fence is 10.2 m wide.

Example 2

The largest pizza available at a local restaurant measures 4 ft 4 in. in diameter. If a class of 18 students were to share this pizza equally, about how many square inches of pizza would each student get?

Solution

First, find the area of the pizza. Use the formula $A = \pi r^2$.

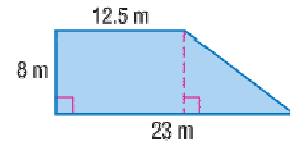
$$\begin{aligned}
 A &= \pi r^2 \\
 A &= \pi \cdot 26^2 \\
 A &\approx 2123.72 && \text{Use a calculator. Round your answer.}
 \end{aligned}$$

The pizza has an area of about 2124 in². Divide by 18 to find out how much each student gets.

$2124 \div 18 \approx 118$. Each student would get approximately 118 in².

Example 3

Find the area of this figure.

**Solution**

The figure can be divided into a rectangle and a triangle.

rectangle

$$A = \ell w$$

$$A = (8)(12.5)$$

$$A = 100$$

triangle

$$A = \frac{1}{2}bh$$

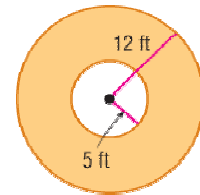
$$A = (0.5)(10.5)(8)$$

$$A = 42$$

The area of the figure is the sum of the areas of the rectangle and triangle.
The area is $100 \text{ m}^2 + 42 \text{ m}^2$, or 142 m^2 .

Example 4

What is the area of the shaded region of this figure?

**Solution**

The shaded area is the difference between the areas of the circles.

$$A = \pi r^2$$

$$A \approx 3.14(12)^2$$

$$A \approx 452 \text{ ft}^2$$

$$A = \pi r^2$$

$$A \approx 3.14(5)^2$$

$$A \approx 79 \text{ ft}^2$$

Subtract $452 - 79 = 373$

The area of the shaded region is about 373 ft^2 .