

MODULE 9

Applications of Geometry Concepts



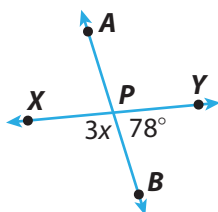
ESSENTIAL QUESTION

How can you apply geometry concepts to solve real-world problems?

Key Vocabulary
 adjacent angles (*ángulos adyacentes*)
 complementary angles (*ángulos complementarios*)
 congruent angles (*ángulos congruentes*)
 supplementary angles (*ángulos suplementarios*)
 vertical angles (*ángulos opuestos por el vértice*)

EXAMPLE 1

Find (a) the value of x and (b) the measure of $\angle APY$.



a. $\angle XPB$ and $\angle YPB$ are supplementary.

$$3x + 78^\circ = 180^\circ$$

$$3x = 102^\circ$$

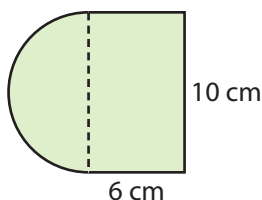
$$x = 34^\circ$$

b. $\angle APY$ and $\angle XPB$ are vertical angles.

$$m\angle APY = m\angle XPB = 3x = 102^\circ$$

EXAMPLE 2

Find the area of the composite figure. It consists of a semicircle and a rectangle.



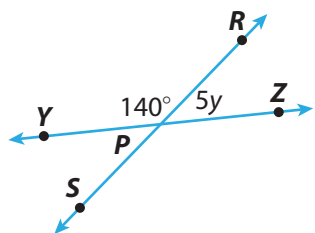
$$\begin{aligned} \text{Area of semicircle} &= 0.5(\pi r^2) \\ &\approx 0.5(3.14)25 \\ &\approx 39.25 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of rectangle} &= \ell w \\ &= 10(6) \\ &= 60 \text{ cm}^2 \end{aligned}$$

The area of the composite figure is approximately 99.25 square centimeters.

EXERCISES

1. Find the value of y and the measure of $\angle YPS$ (Lesson 9.1)



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

$$m\angle YPS = \underline{\hspace{2cm}}$$