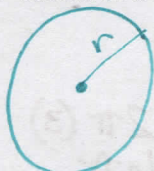


11.1

Practice WS

In Exercises 1–4, find the indicated measure. Draw and label your image.

1. radius of a circle with a circumference of 42π meters

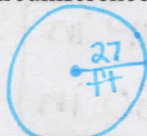


$$C = \pi d r$$

$$\frac{42\pi}{2} = \frac{\pi(2)r}{2}$$

$$r = 21m$$

2. circumference of a circle with a radius of 27 feet

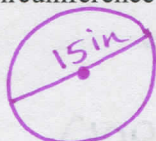


$$C = 2\pi r$$

$$= 2\pi(27)$$

$$= 54\pi \text{ ft} \approx 169.646 \text{ ft}$$

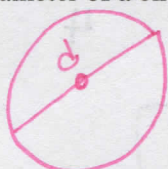
3. circumference of a circle with a diameter of 15 inches



$$C = \pi d$$

$$= 15\pi \text{ in} \approx 47.124 \text{ in}$$

4. diameter of a circle with circumference 39 centimeters



$$C = \pi d$$

$$39 = \pi d$$

$$d = \frac{39}{\pi} \text{ cm} \approx 12.414 \text{ cm}$$

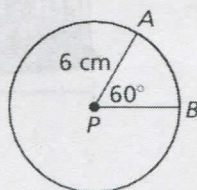
5. Maple trees suitable for tapping for syrup should be at least 1.5 feet in diameter.

You wrap a rope around a tree trunk, then measure the length of the rope needed to wrap one time around the trunk. This length is 4 feet 2 inches. Explain how you can use this length to determine whether the tree is suitable for tapping.

Divide the circumference of the tree by π to find the diameter of the tree. Because the diameter is $50 \div \pi \approx 15.915$ in, which is less than 18 in, the tree is not suitable for tapping.

In Exercises 6–8, find the arc length of \widehat{AB} .

- 6.



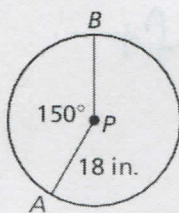
$$\frac{x}{2\pi(6)} = \frac{60}{360}$$

$$360x = 720\pi$$

$$x = 2\pi \text{ cm}$$

$$\approx 6.283 \text{ cm}$$

- 7.



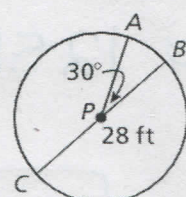
$$\frac{x}{2\pi(18)} = \frac{150}{360}$$

$$360x = 5400\pi$$

$$x = 15\pi \text{ in.}$$

$$\approx 47.124 \text{ in.}$$

- 8.



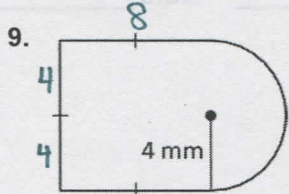
$$\frac{x}{2\pi(28)} = \frac{30}{360}$$

$$360x = 840\pi$$

$$x = \frac{7}{3}\pi \text{ ft}$$

$$\approx 7.33 \text{ ft}$$

In Exercises 9 and 10, find the perimeter of the region.

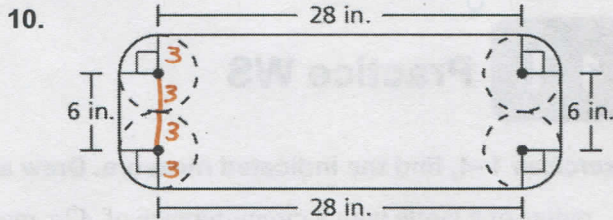


$$\square + \frac{1}{2}\odot$$

$$3(4 \cdot 2) + \frac{1}{2}(2\pi(4))$$

$$P = 24 + 4\pi \text{ mm}$$

$$\approx 36.566 \text{ mm}$$



$$\square + \odot$$

$$2(28) + 2(6) + 2\pi(3)$$

$$56 + 12 + 6\pi$$

$$P = 68 + 6\pi \text{ in}$$

$$\approx 86.850 \text{ in}$$

In Exercises 11 and 12, convert the angle measure.

11. Convert 60° to radians.

$$60 \cdot \frac{\pi}{180} = \frac{60\pi}{180}$$

$$\frac{\pi}{3}$$

12. Convert $\frac{5\pi}{4}$ radians to degrees.

$$\frac{5\pi}{4} \cdot \frac{180}{\pi} = \frac{900}{4}$$

$$225^\circ$$

13. A carousel has a diameter of 50 feet. To the nearest foot, how far does a child seated near the outer edge travel when the carousel makes 8 revolutions?

$$D = 8(2\pi 25)$$

$$= 400\pi$$

$$\approx 1256.637 \text{ ft}$$

$$1257 \text{ ft}$$

