

Lesson 11.3

Real-World Problems

Running Track

- The running track is made up of a rectangle and two semicircles. Find the perimeter of the track.

$$C = \pi d$$

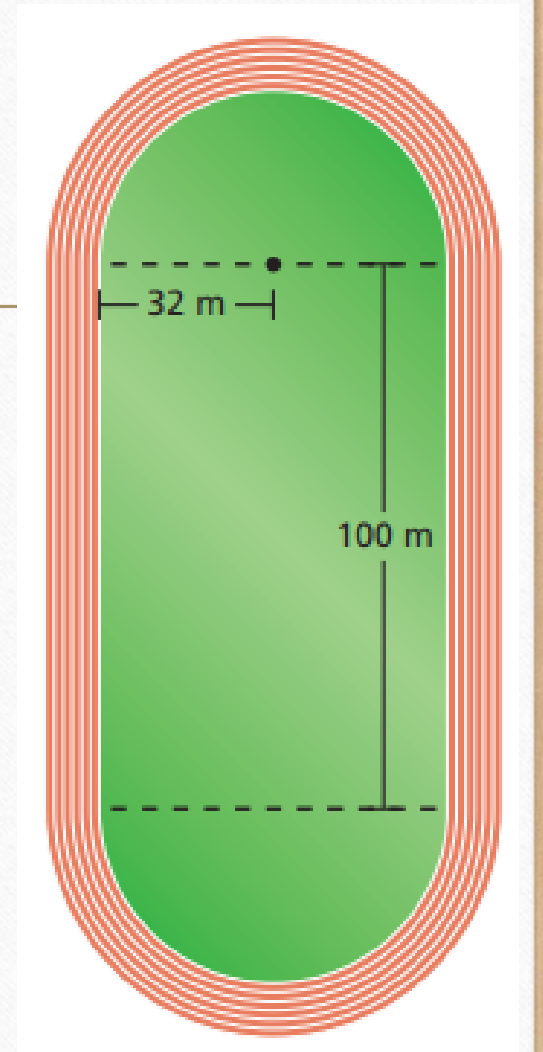
$$C = 3.14(64)$$

$$C = 200.96 \text{ m}$$

$$P = 200.96 + 100 + 100$$

$$P = 400.96 \text{ m}$$

- The running track has six lanes. Explain why the starting points for the six runners are staggered.



Baseball

- You run around the perimeter of the baseball field at a rate of 9 feet per second. How long does it take you to run around the baseball field?

$$C = \pi d$$

$$C = 3.14(450)$$

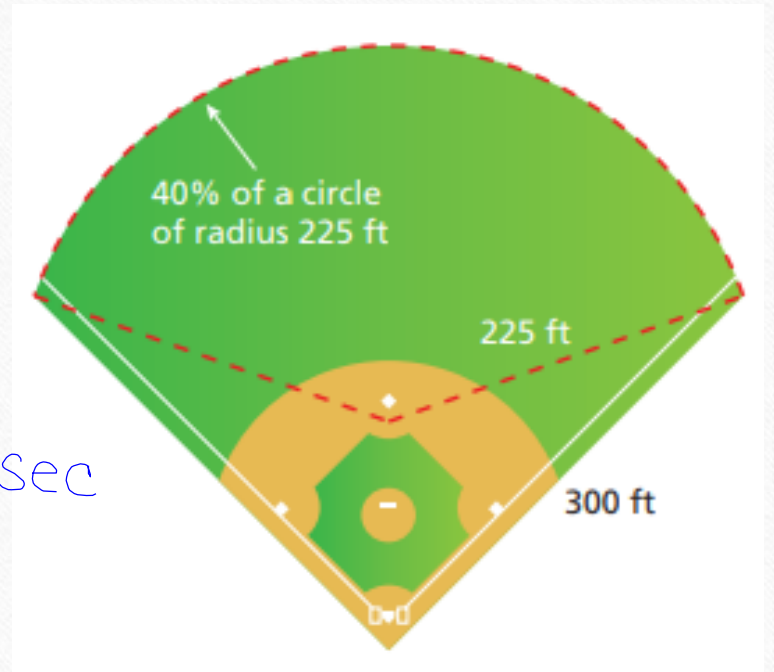
$$C = 1,413 \text{ ft}$$

$$1,413(0.40) = 565.2 \text{ ft}$$

$$P = 565.2 + 300 + 300$$

$$P = 1,165.2 \text{ ft}$$

$$1,165.2 \div 9 = 129.5 \text{ sec}$$



Baking

- A baker is using two circular pans. The larger pan has a diameter of 12 inches. The smaller pan has a diameter of 7 inches. How much greater is the circumference of the larger pan than that of the smaller pan?

Larger

$$C = \pi d$$

$$C = 3.14(12)$$

$$C = 37.68 \text{ in}$$

Smaller

$$C = \pi d$$

$$C = 3.14(7)$$

$$C = 21.98 \text{ in}$$

15.7 in greater



Basketball Court

- Find the area of the portion of the basketball court.

$$A = \pi r^2$$

$$A = 3.14(6)^2$$

$$A = 3.14(36)$$

$$A = 113.04 \text{ ft}^2 \div 2$$

$$A = 56.52 \text{ ft}^2$$

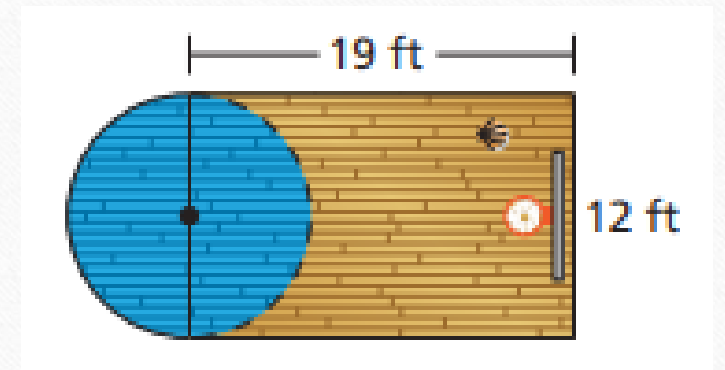
$$A = bh$$

$$A = 19(12)$$

$$A = 228 \text{ ft}^2$$

$$A = 228 + 56.52$$

$$A = 284.52 \text{ ft}^2$$



Fountain

- The fountain is made up of two semicircles and a quarter circle. Find the area of the fountain.

Semicircles

$$1) A = \pi r^2$$

$$2) A = 3.14(10)^2$$

$$3) A = 3.14(100)$$

$$4) A = 314 \text{ ft}^2$$

Quadrant

$$1) A = \pi r^2$$

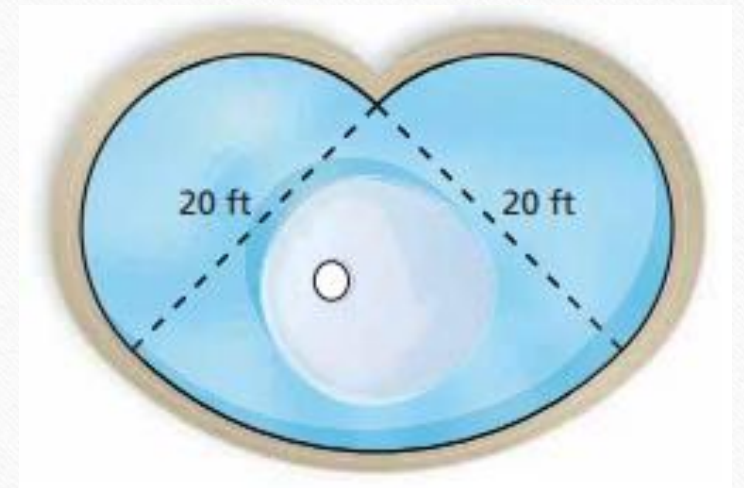
$$2) A = 3.14(20)^2$$

$$3) A = 3.14(400)$$

$$4) A = 1,256 \div 4$$

$$A = 314 \text{ ft}^2$$

$$A = 628 \text{ ft}^2$$



Tire

- The tire of a car has a radius of 10.5 inches. How many revolutions does the tire need to make for the car to travel 13,200 inches? Use $\frac{22}{7}$ as an approximation for π .

$$C = 2\pi r$$

$$C = 2\left(\frac{22}{7}\right)(10.5)$$

$$C = 66 \text{ in}$$

$$13,200 \div 66 = 200 \text{ revolutions}$$



Plate

- The circumference of a plate is 18.84 centimeters. Find the radius of the plate. Use 3.14 as an approximation for π .

$$C = 2\pi r$$

$$18.84 = 2(3.14)r$$

$$\frac{18.84}{6.28} = \frac{6.28r}{6.28}$$

$$r = 3 \text{ cm}$$



Pool

- The area of a pool is 78.5 square meters. Find the diameter of the pool. Use 3.14 as an approximation for π .

$$A = \pi r^2$$
$$\frac{78.5}{3.14} = \frac{3.14}{3.14} r^2$$
$$\sqrt{r^2} = \sqrt{25}$$
$$r = 5 \text{ m}$$
$$d = 10 \text{ m}$$



Fishpond

The figure shows a circular fishpond enclosed within a semicircular flowerbed. The diameter of the pond, \overline{PQ} , is 42 inches. Find the area of the shaded region.

Semicircle

$$1) A = \pi r^2$$

$$2) A = 3.14(42)^2$$

$$3) A = 3.14(1,764)$$

$$4) A = 5,538.96 \div 2$$

$$A = 2,769.48 \text{ in}^2$$

Circle

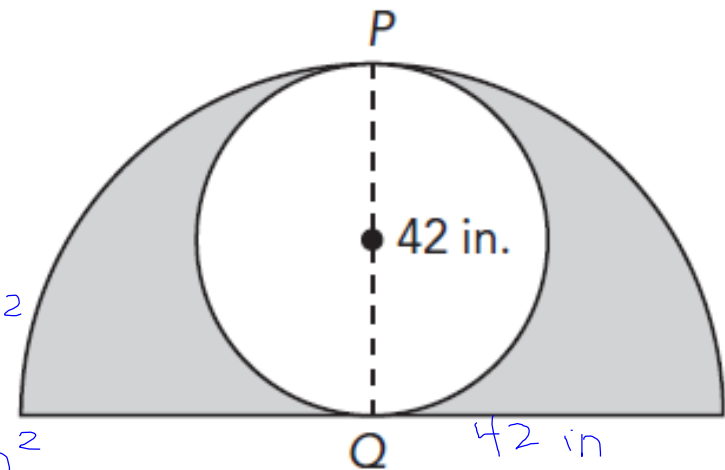
$$1) A = \pi r^2$$

$$2) A = 3.14(21)^2$$

$$3) A = 3.14(441)$$

$$4) A = 1,384.74 \text{ in}^2$$

$$A = 1,384.74 \text{ in}^2$$



Card

- The heart-shaped card is made up of a square and two semicircles. What is the area of the card?



Rug

- The circular rug is placed on a square floor. The rug touches all four walls. How much of the floor space is not covered by the rug?

