

**Directions:** Please choose the best answer choice for each of the following questions.

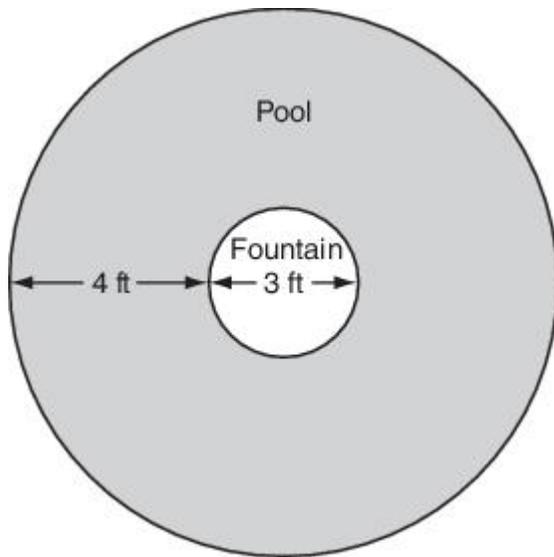
1. Mike has a rope 6 ft long. One end of the rope is tied to a stake. If Mike were to walk in a complete circle while holding the loose end of the rope, about how far would he walk?

- A. 12 ft
- B. 19 ft
- C. 38 ft
- D. 113 ft

2. Sally has a circular rug on the floor of her bedroom. If the area of the rug is  $16\pi$  square feet, what is the diameter of the rug?

- A. 2 feet
- B. 4 feet
- C. 8 feet
- D. 16 feet

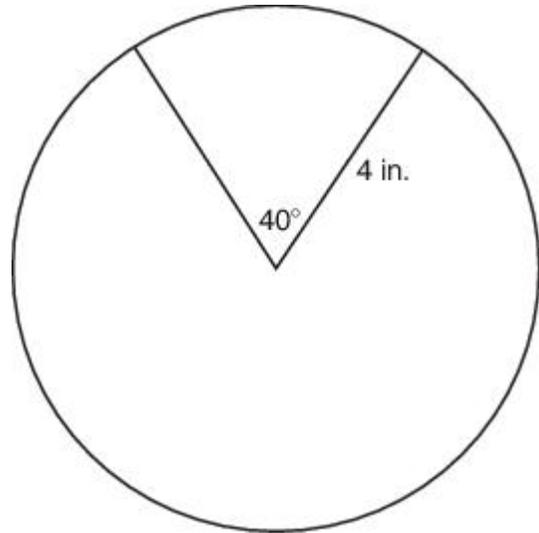
3. Jacynda has a circular pool with a circular fountain in the very center, as shown below. She decides to install a row of tile around the outer edge of the pool.



What is the circumference of the pool? (Use 3.14 for  $\pi$ .)

- A. 21.98 feet
- B. 25.12 feet
- C. 31.40 feet
- D. 34.54 feet

4. Max ate a piece of a monster cookie that is represented by the  $40^\circ$  sector shown in the diagram below.

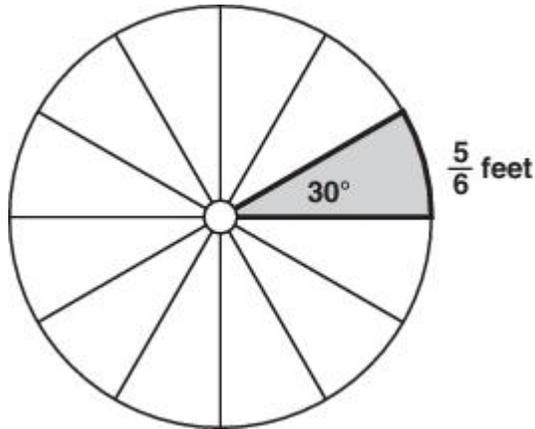


If Max divides the rest of the cookie equally among his 4 friends, what is the area of each friend's piece?

- A.  $\frac{32\pi}{9}$  in.<sup>2</sup>
  - B.  $\frac{16\pi}{9}$  in.<sup>2</sup>
  - C.  $\frac{16\pi}{5}$  in.<sup>2</sup>
  - D.  $4\pi$  in.<sup>2</sup>
5. What are the center and the radius of the circle with the equation  $(x + 4)^2 + (y - 1)^2 = 25$ ?
- A. center =  $(-4, 1)$ , radius = 25
  - B. center =  $(-4, 1)$ , radius = 5
  - C. center =  $(4, -1)$ , radius = 25
  - D. center =  $(4, -1)$ , radius = 5

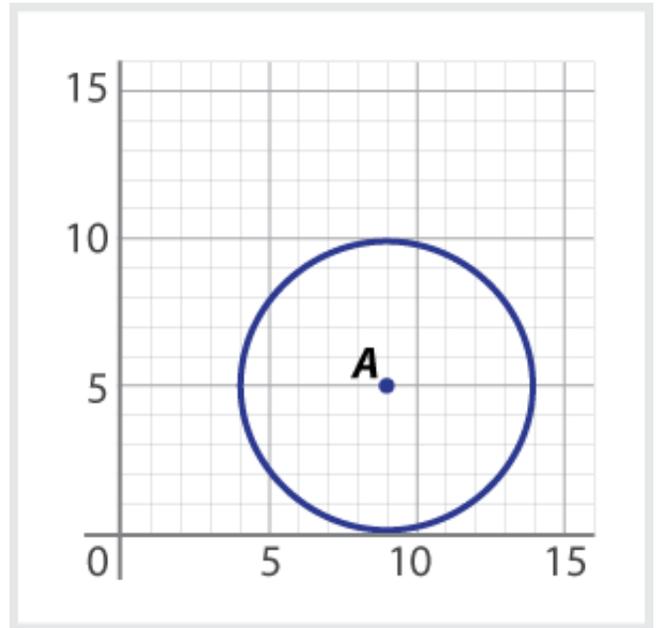
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6. A wagon wheel has equally spaced spokes that meet in the center at  $30^\circ$  angles to each other. If the length of the outer rim of the wheel between two neighboring spokes is  $\frac{5}{6}$  feet, what is the diameter of the wheel to the nearest tenth of a foot?

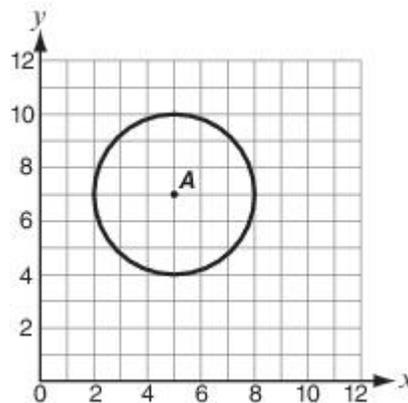


- A. 1.6 ft  
 B. 3.2 ft  
 C. 6.5 ft  
 D. 8.0 ft
7. Circle  $C$  is defined by the equation  $(x + 4.2)^2 + (y - 5.1)^2 = 36$ . Which of the following identifies the center  $C(h, k)$  and radius of circle  $C$ ?
- A.  $C(4.2, -5.1)$ , radius of 36 units  
 B.  $C(-4.2, 5.1)$ , radius of 36 units  
 C.  $C(-4.2, 5.1)$ , radius of 6 units  
 D.  $C(4.2, -5.1)$ , radius of 6 units
8. Manuel drew a circle with the center at  $(4, -2)$  and a diameter of 10. Which equation represents Manuel's circle?
- A.  $(x - 4)^2 + (y + 2)^2 = 25$   
 B.  $(x + 4)^2 + (y - 2)^2 = 25$   
 C.  $(x - 4)^2 + (y + 2)^2 = 100$   
 D.  $(x + 4)^2 + (y - 2)^2 = 100$

9. Circle  $A$  is shown in the graph below. Which of the following equations defines circle  $A$ ?



- A.  $(x - 9)^2 + (y - 5)^2 = 25$   
 B.  $(x + 9)^2 + (y + 5)^2 = 25$   
 C.  $(x - 9)^2 + (y - 5)^2 = 5$   
 D.  $(x + 9)^2 + (y + 5)^2 = 5$
10. The location of cell phone tower  $A$  is shown on the coordinate plane below. Integers represent miles.



The tower is located at  $(5, 7)$  and has a transmission range of 3 miles. Which equation represents the position and range of tower  $A$ ?

- A.  $(x + 5)^2 + (y + 7)^2 = 3$   
 B.  $(x - 5)^2 + (y - 7)^2 = 3$   
 C.  $(x + 5)^2 + (y + 7)^2 = 9$   
 D.  $(x - 5)^2 + (y - 7)^2 = 9$

**Stop! You have finished this exam.**