

**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

**Answer Choice Rationale**

- A. No rationale available
- B. No rationale available
- C. Correct
- D. No rationale available

ItemID A2KC.1107359  
 Correct C  
 Standard(s) MA.9-12.MA.912.G.6.5

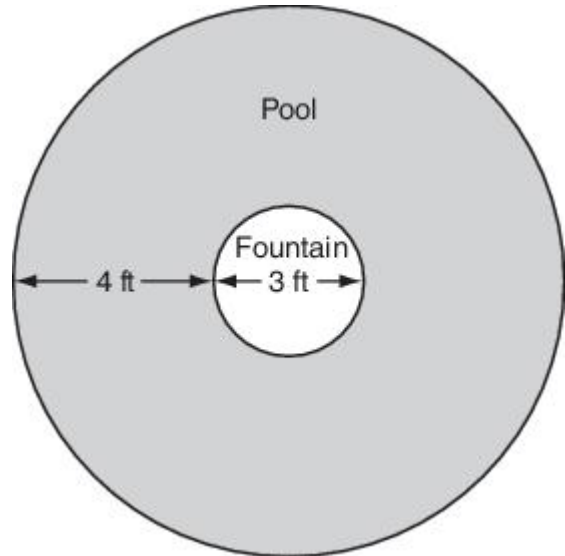
2. Sally has a circular rug on the floor of her bedroom. If the area of the rug is  $16\pi$  square feet, what is the diameter of the rug?
- A. 2 feet
  - B. 4 feet
  - C. 8 feet
  - D. 16 feet

**Answer Choice Rationale**

- This answer finds the radius of the rug as 4 feet
- A. correctly, but divides the radius by 2 to find the diameter instead of multiplying the radius by 2.
  - B. This answer is the radius of the rug.
  - C. Correct answer.
  - D. This answer finds the diameter of the rug if the circumference is  $16\pi$  feet.

ItemID A2K.1021242  
 Correct C  
 Standard(s) MA.9-12.MA.912.G.6.5

3. Jacynnda 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

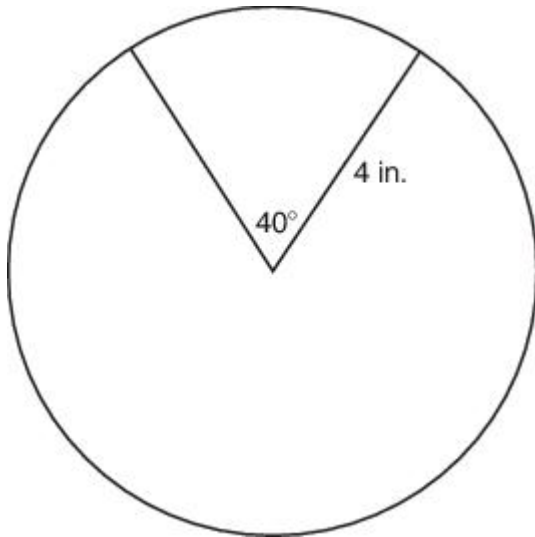
**Answer Choice Rationale**

- A. This answer finds the diameter of the pool as 4 feet + 3 feet instead of 4 feet + 3 feet + 4 feet.
- B. This answer finds the diameter of the pool as 4 feet + 4 feet instead of 4 feet + 3 feet + 4 feet.
- C. This answer finds the diameter of the pool as 4 feet + 3 feet + 3 feet instead of 4 feet + 3 feet + 4 feet.
- D. Correct answer.

ItemID A2K.1019452  
 Correct D  
 Standard(s) MA.9-12.MA.912.G.6.5

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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>

**Answer Choice Rationale**

- A. Correct answer
- B. This is the area of Max's cookie.  
This is the area of the cookie divided by 5. This
- C. answer does not recognize that the 5 cookies are not equal sizes.
- D. This is the total area of the cookie divided by 4.

ItemID A2K.1020061  
Correct A  
Standard(s) MA.9-12.MA.912.G.6.5

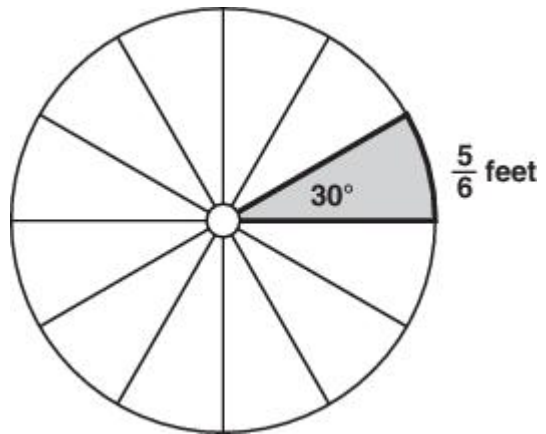
5. What are the center and the radius of the circle with the equation  $(x + 4)^2 + (y - 1)^2 = 25$  ?
- A. center =  $(-4, 1)$ , radius = 25
  - B. center =  $(-4, 1)$ , radius = 5
  - C. center =  $(4, -1)$ , radius = 25
  - D. center =  $(4, -1)$ , radius = 5

**Answer Choice Rationale**

- A. No rationale available
- B. Correct
- C. No rationale available
- D. No rationale available

ItemID A2KC.1139319  
Correct B  
Standard(s) MA.9-12.MA.912.G.6.6

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

**Answer Choice Rationale**

- A. No rationale available
- B. Correct
- C. No rationale available
- D. No rationale available

ItemID A2KC.1087501  
Correct B  
Standard(s) MA.9-12.MA.912.G.6.5

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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

**Answer Choice Rationale**

- A. No rationale available
- B. No rationale available
- C. Correct
- D. No rationale available

ItemID saltsmad.3251  
 Correct C  
 Standard(s) MA.9-12.MA.912.G.6.6

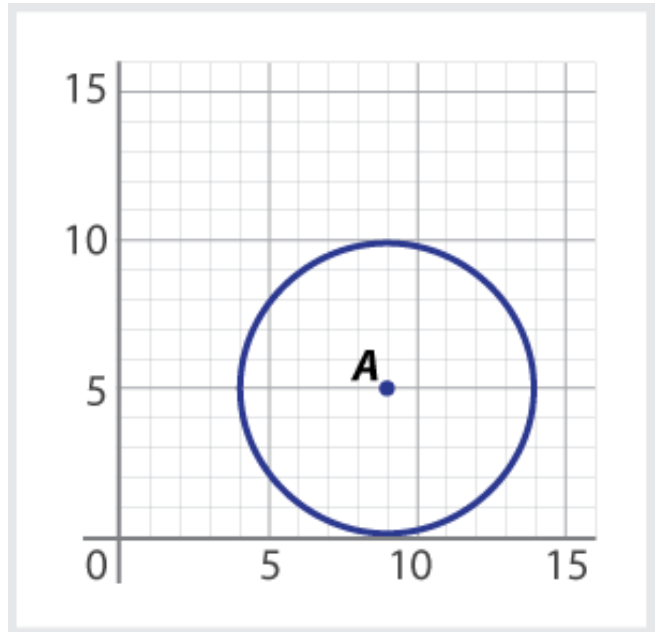
8. Manuel drew a circle with the center at  $(4, -2)$  and a diameter of 10. Which equation represents Manuel's circle?
- A.  $(x - 4)^2 + (y + 2)^2 = 25$
  - B.  $(x + 4)^2 + (y - 2)^2 = 25$
  - C.  $(x - 4)^2 + (y + 2)^2 = 100$
  - D.  $(x + 4)^2 + (y - 2)^2 = 100$

**Answer Choice Rationale**

- A. Correct answer.
- B. This answer reverses the sign of each factor. This answer has the right side of the equation as the diameter squared instead of the radius squared.
- C. This answer has the right side of the equation as the diameter squared instead of the radius squared, and reverses the sign of each factor.

ItemID A2K.1085571  
 Correct A  
 Standard(s) MA.9-12.MA.912.G.6.6

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



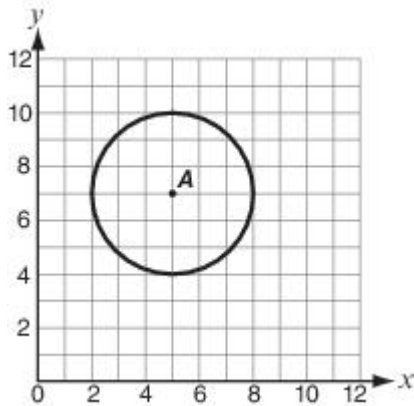
- A.  $(x - 9)^2 + (y - 5)^2 = 25$
- B.  $(x + 9)^2 + (y + 5)^2 = 25$
- C.  $(x - 9)^2 + (y - 5)^2 = 5$
- D.  $(x + 9)^2 + (y + 5)^2 = 5$

**Answer Choice Rationale**

- A. Correct
- B. No rationale available
- C. No rationale available
- D. No rationale available

ItemID saltsmad.3253  
 Correct A  
 Standard(s) MA.9-12.MA.912.G.6.6

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.  $(x - 5)^2 + (y - 7)^2 = 9$

**Answer Choice Rationale**

- A. This answer does not reverse the signs of the coordinates when writing the equation, and does not square the radius when writing the equation.
- B. This answer does not square the radius when writing the equation.
- C. This answer does not reverse the signs of the coordinates when writing the equation.
- D. Correct answer.

ItemID A2K.1085568  
 Correct D  
 Standard(s) MA.9-12.MA.912.G.6.6