**April 2015**

30. The circle in the standard (x,y) coordinate plane below has center (-8.5, 7.5) and has radius 5 coordinate units. [PICTURE]

Which of the following is an equation of this circle?

1. (x - 8.5)2 + (y + 7.5)2 = 10
2. (x + 8.5)2 + (y - 7.5)2 = 10
3. (x - 8.5)2 + (y + 7.5)2 = 25
4. (x + 8.5)2 + (y - 7.5)2 = 25
5. (x + 8.5)2 + (y + 7.5)2 = 25

31. The circle in the standard (x,y) coordinate plane below has center (-8.5, 7.5) and has radius 5 coordinate units. [PICTURE]

What is the area, in square coordinate units, of this circle?

1. (5/2)π
2. (25/2)π
3. 10π
4. 25π
5. 100π

44. Points O(0,0) and B(0,3) below lie in the standard (x,y) coordinate plane. The collection of all points such that each is twice as far from B as from O forms a circle. The point (rad3, 0) is 1 point on the circle. What are the coordinates of the center of that circle?

\*\*\*\*picture\*\*\*\*

1. ( (rad3)/2 , 3/2)
2. (0, 3/2)
3. (0, 1)
4. (0, -1)
5. (0, -3)

**June 2015**

27. Graphed in the same standard (x,y) coordinate plane are a circle and a parabola. The circle has radius 3 and center (0, 0). The parabola has vertex (-3, -2), has a vertical axis of symmetry, and passes through (-2, -1). The circle and the parabola intersect at how many points?

1. 0
2. 1
3. 2
4. 3
5. 4

35. In the figure shown below, ABCD is a rectangle, EFGH is a square, and (line)CD is the diameter of a semicircle. Points K is the midpoint of (line)CD. Point J is the midpoint of both (line)AB and (line)EF. Points E and F lie on (line)AB. The 3 given lengths are in meters. [PICTURE]

What is the length, in meters, of arc (arc)CD?

1. 2.5π
2. 5π
3. 6.25π
4. 10π
5. 25π

58. In the circle with center D shown below, the length of radius (line)CD is 4 cm, the length of (line)BC is 1 cm, and (line)BC is perpendicular to radius (line)AD at B. When (Angle)ADC is measured in degrees, which of the following expressions represents the length, in centimeters of (arc)AC?

\*\*\*\*\*\*picture\*\*\*\*\*

1. (π/45)(sin-1(¼))
2. (π/45)(cos-1(¼))
3. (2π/45)(sin-1(¼))
4. (2π/45)(cos-1(¼))
5. (2π/45)(tan-1(¼))

**December 2015**

8. The circular spinner dial for a new board game is divided into 6 congruent sectors. What is the arc measure, in degrees, of each sector?

1. 30°
2. 36°
3. 45°
4. 60°
5. 72°

26. The diameter of a circle is 6 feet. What is the area, in square feet, of the circle?

1. 3π
2. 6π
3. 9π
4. 36π
5. 144π

38. In standard (x,y) coordinate plane below, a circle has a radius of r coordinate units and passes through the origin, O. The circle has diameter (line)OS, where S lies on the negative y-axis. In terms of r, what are the coordinates of S?

\*\*\*\*picture\*\*\*

1. (0, -2πr)
2. (0, -2r)
3. (0, -r)
4. (0, -0.5r)
5. (0, r)

**June 2016**

33. The circumference of a circle is 20cm. What is the length, in centimeters, of the *radius* of the circle?

a. π

b. 10/π

c. 20/π

d. 20

e. 20π

**December 2016**

47. A circle with radius 10 cm is divided into 3 congruent arcs. What is the length, in centimeters, of each of the 3 arcs?

1. (10π)/3
2. (20π)/3
3. 10π
4. (40π)/3
5. 20π

60. The circle with equation x2 + (y - 1)2 = 1 is graphed in the standard (x,y) coordinate plane below. Suppose the circle rolls along the positive x-axis for 2 rotations and then stops. Which of the following is an equation of the circle in its new position?

\*\*\*\*picture\*\*\*\*

1. (x + 2)2 + (y - 1)2 = 1
2. (x + 2π)2 + (y - 1)2 = 1
3. (x + 4π)2 + (y - 1)2 = 1
4. (x - 2π)2 + (y - 1)2 = 1
5. (x - 4π)2 + (y - 1)2 = 1

**June 2017**

52. In the standard (x,y) coordinate plane, the circle centered at (1,3) that passes through (4,7) is the set of all points are:

1. 5 coordinate units from (1,3).
2. 5 coordinate units from both (1,3) and (4,7).
3. 5 coordinate units from the line segment with endpoints (1,3) and (4,7).
4. Equidistant from (1,3) and (4,7).
5. Equidistant from the line segment with endpoints (1,3) and (4,7).