G.GPE.A.1: Equations of Circles 3

1 Which equation represents a circle whose center is $(3,-2)$?
   1) $(x+3)^2 + (y-2)^2 = 4$
   2) $(x-3)^2 + (y+2)^2 = 4$
   3) $(x+2)^2 + (y-3)^2 = 4$
   4) $(x-2)^2 + (y+3)^2 = 4$

2 Which equation represents circle O with center $(2,-8)$ and radius 9?
   1) $(x+2)^2 + (y-8)^2 = 9$
   2) $(x-2)^2 + (y+8)^2 = 9$
   3) $(x+2)^2 + (y-8)^2 = 81$
   4) $(x-2)^2 + (y+8)^2 = 81$

3 What is an equation of a circle with its center at $(-3,5)$ and a radius of 4?
   1) $(x-3)^2 + (y+5)^2 = 16$
   2) $(x+3)^2 + (y-5)^2 = 16$
   3) $(x-3)^2 + (y+5)^2 = 4$
   4) $(x+3)^2 + (y-5)^2 = 4$

4 Which equation represents the circle whose center is $(-2,3)$ and whose radius is 5?
   1) $(x-2)^2 + (y+3)^2 = 5$
   2) $(x+2)^2 + (y-3)^2 = 5$
   3) $(x+2)^2 + (y-3)^2 = 25$
   4) $(x-2)^2 + (y+3)^2 = 25$

5 What is an equation of a circle with center $(7,-3)$ and radius 4?
   1) $(x-7)^2 + (y+3)^2 = 4$
   2) $(x+7)^2 + (y-3)^2 = 4$
   3) $(x-7)^2 + (y+3)^2 = 16$
   4) $(x+7)^2 + (y-3)^2 = 16$

6 What is the equation of a circle with center $(-3,1)$ and radius 7?
   1) $(x-3)^2 + (y+1)^2 = 7$
   2) $(x-3)^2 + (y+1)^2 = 49$
   3) $(x+3)^2 + (y-1)^2 = 7$
   4) $(x+3)^2 + (y-1)^2 = 49$

7 What is an equation of the circle with center $(-5,4)$ and a radius of 7?
   1) $(x-5)^2 + (y+4)^2 = 14$
   2) $(x-5)^2 + (y+4)^2 = 49$
   3) $(x+5)^2 + (y-4)^2 = 14$
   4) $(x+5)^2 + (y-4)^2 = 49$

8 What is an equation of the circle with a radius of 5 and center at $(1,-4)$?
   1) $(x+1)^2 + (y-4)^2 = 5$
   2) $(x-1)^2 + (y+4)^2 = 5$
   3) $(x+1)^2 + (y-4)^2 = 25$
   4) $(x-1)^2 + (y+4)^2 = 25$

9 The equation of a circle with its center at $(-3,5)$ and a radius of 4 is
1) $(x+3)^2 + (y-5)^2 = 4$
2) $(x-3)^2 + (y+5)^2 = 4$
3) $(x+3)^2 + (y-5)^2 = 16$
4) $(x-3)^2 + (y+5)^2 = 16$

10 What is the equation of a circle with its center at $(5,-2)$ and a radius of 3?
1) $(x-5)^2 + (y+2)^2 = 3$
2) $(x-5)^2 + (y+2)^2 = 9$
3) $(x+5)^2 + (y-2)^2 = 3$
4) $(x+5)^2 + (y-2)^2 = 9$

11 What is the equation of a circle whose center is 4 units above the origin in the coordinate plane and whose radius is 6?
1) $x^2 + (y-6)^2 = 16$
2) $(x-6)^2 + y^2 = 16$
3) $x^2 + (y-4)^2 = 36$
4) $(x-4)^2 + y^2 = 36$

12 The center of a circular sunflower with a diameter of 4 centimeters is $(-2,1)$. Which equation represents the sunflower?
1) $(x-2)^2 + (y+1)^2 = 2$
2) $(x+2)^2 + (y-1)^2 = 4$
3) $(x-2)^2 + (y-1)^2 = 4$
4) $(x+2)^2 + (y-1)^2 = 2$

13 What is an equation of a circle whose center is $(1,4)$ and diameter is 10?
1) $x^2 - 2x + y^2 - 8y = 8$
2) $x^2 + 2x + y^2 + 8y = 8$
3) $x^2 - 2x + y^2 - 8y = 83$
4) $x^2 + 2x + y^2 + 8y = 83$

14 A graphic designer is drawing a pattern of four concentric circles on the coordinate plane. The center of the circles is located at $(-2,1)$. The smallest circle has a radius of 1 unit. If the radius of each of the circles is one unit greater than the largest circle within it, what would be the equation of the fourth circle?
1) $(x-2)^2 + (y+1)^2 = 4$
2) $(x+2)^2 + (y-1)^2 = 4$
3) $(x-2)^2 + (y+1)^2 = 16$
4) $(x+2)^2 + (y-1)^2 = 16$

15 Write an equation of a circle whose center is $(-3,2)$ and whose diameter is 10.

2

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Answer Section

1 ANS: 2   REF: 060008a
2 ANS: 4   REF: 011212ge
3 ANS: 2   REF: 060910ge
4 ANS: 3   REF: 011010ge
5 ANS: 3   REF: 011116ge
6 ANS: 4   REF: 010514b
7 ANS: 4   REF: 081305ge
8 ANS: 4   REF: 081110ge
9 ANS: 3   REF: 081209ge
10 ANS: 2   REF: 011601ge
11 ANS: 3   REF: 061210ge
12 ANS: 2   REF: 060110b
13 ANS: 1

$$(x-1)^2 + (y-4)^2 = \left(\frac{10}{2}\right)^2$$

$$x^2 - 2x + 1 + y^2 - 8y + 16 = 25$$

$$x^2 - 2x + y^2 - 8y = 8$$

REF: 011920geo

14 ANS: 4   REF: 010912b
15 ANS:
If $r = 5$, then $r^2 = 25$. $(x+3)^2 + (y-2)^2 = 25$

REF: 011332ge