

**G.G.71: Equations of Circles 1: Write the equation of a circle, given its center and radius or given the endpoints of a diameter**

- 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 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)  $(x - 4)^2 + y^2 = 36$

11 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)  $(x + 2)^2 + (y - 1)^2 = 2$

12 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)  $(x + 2)^2 + (y - 1)^2 = 16$

13 Which equation represents the circle whose center is  $(-5, 3)$  and that passes through the point  $(-1, 3)$ ?

- 1)  $(x + 1)^2 + (y - 3)^2 = 16$
- 2)  $(x - 1)^2 + (y + 3)^2 = 16$
- 3)  $(x + 5)^2 + (y - 3)^2 = 16$
- 4)  $(x - 5)^2 + (y + 3)^2 = 16$

14 What is the equation of the circle with its center at  $(-1, 2)$  and that passes through the point  $(1, 2)$ ?

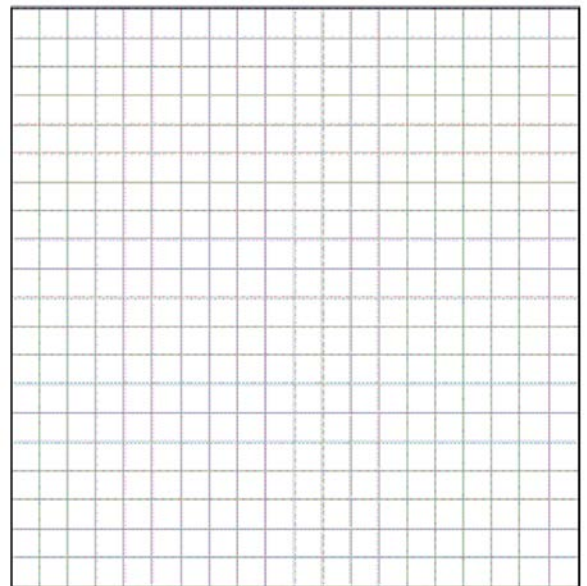
- 1)  $(x + 1)^2 + (y - 2)^2 = 4$
- 2)  $(x - 1)^2 + (y + 2)^2 = 4$
- 3)  $(x + 1)^2 + (y - 2)^2 = 2$
- 4)  $(x - 1)^2 + (y + 2)^2 = 2$

15 The diameter of a circle has endpoints at  $(-2, 3)$  and  $(6, 3)$ . What is an equation of the circle?

- 1)  $(x - 2)^2 + (y - 3)^2 = 16$
- 2)  $(x - 2)^2 + (y - 3)^2 = 4$
- 3)  $(x + 2)^2 + (y + 3)^2 = 16$
- 4)  $(x + 2)^2 + (y + 3)^2 = 4$

16 Write an equation of the circle whose diameter  $\overline{AB}$  has endpoints  $A(-4, 2)$  and  $B(4, -4)$ .

[The use of the grid below is optional.]



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