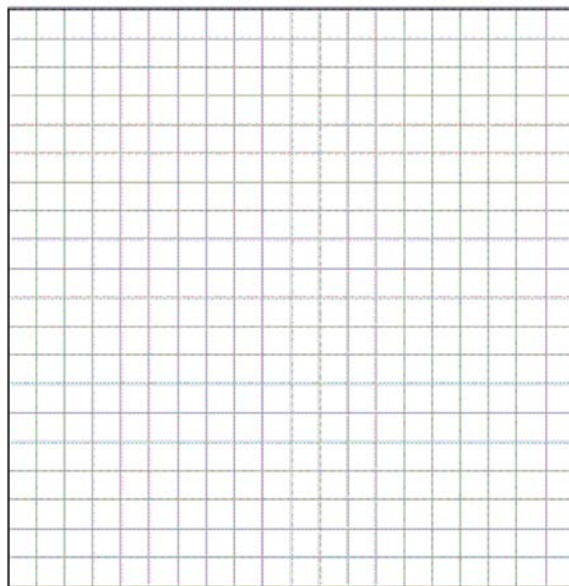


G.G.71: Equations of Circles 1: Write the equation of a circle, given its center and radius or given the endpoints of a diameter

- 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?
- $(x - 2)^2 + (y + 1)^2 = 2$
 - $(x + 2)^2 + (y - 1)^2 = 4$
 - $(x - 2)^2 + (y - 1)^2 = 4$
 - $(x + 2)^2 + (y - 1)^2 = 2$
- 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?
- $(x - 2)^2 + (y + 1)^2 = 4$
 - $(x + 2)^2 + (y - 1)^2 = 4$
 - $(x - 2)^2 + (y + 1)^2 = 16$
 - $(x + 2)^2 + (y - 1)^2 = 16$
- 13 Which equation represents a circle whose center is the origin and that passes through the point $(-4, 0)$?
- $x^2 + y^2 = 8$
 - $x^2 + y^2 = 16$
 - $(x + 4)^2 + y^2 = 8$
 - $(x + 4)^2 + y^2 = 16$
- 14 A circle whose center has coordinates $(-3, 4)$ passes through the origin. What is the equation of the circle?
- $(x + 3)^2 + (y - 4)^2 = 5$
 - $(x + 3)^2 + (y - 4)^2 = 25$
 - $(x - 3)^2 + (y + 4)^2 = 5$
 - $(x - 3)^2 + (y + 4)^2 = 25$
- 15 Which equation represents the circle whose center is $(-5, 3)$ and that passes through the point $(-1, 3)$?
- $(x + 1)^2 + (y - 3)^2 = 16$
 - $(x - 1)^2 + (y + 3)^2 = 16$
 - $(x + 5)^2 + (y - 3)^2 = 16$
 - $(x - 5)^2 + (y + 3)^2 = 16$
- 16 What is the equation of the circle with its center at $(-1, 2)$ and that passes through the point $(1, 2)$?
- $(x + 1)^2 + (y - 2)^2 = 4$
 - $(x - 1)^2 + (y + 2)^2 = 4$
 - $(x + 1)^2 + (y - 2)^2 = 2$
 - $(x - 1)^2 + (y + 2)^2 = 2$
- 17 The coordinates of the endpoints of the diameter of a circle are $(2, 0)$ and $(2, -8)$. What is the equation of the circle?
- $(x - 2)^2 + (y + 4)^2 = 16$
 - $(x + 2)^2 + (y - 4)^2 = 16$
 - $(x - 2)^2 + (y + 4)^2 = 8$
 - $(x + 2)^2 + (y - 4)^2 = 8$
- 18 The diameter of a circle has endpoints at $(-2, 3)$ and $(6, 3)$. What is an equation of the circle?
- $(x - 2)^2 + (y - 3)^2 = 16$
 - $(x - 2)^2 + (y - 3)^2 = 4$
 - $(x + 2)^2 + (y + 3)^2 = 16$
 - $(x + 2)^2 + (y + 3)^2 = 4$
- 19 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.]



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

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

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: 3 REF: 061210ge
 11 ANS: 2 REF: 060110b
 12 ANS: 4 REF: 010912b
 13 ANS: 2 REF: 061524ge
 14 ANS: 2 REF: 011511ge
 15 ANS: 3 REF: 061306ge
 16 ANS: 1 REF: 011423ge
 17 ANS: 1

$$\left(\frac{2+2}{2}, \frac{0+(-8)}{2} \right) = (2, -4) \quad \sqrt{(2-2)^2 + (-8-0)^2} = 8 = d$$

$$4 = r$$

$$16 = r^2$$

REF: 061428ge

- 18 ANS: 1 REF: fall0820ge

- 19 ANS:

$$\text{Midpoint: } \left(\frac{-4+4}{2}, \frac{2+(-4)}{2} \right) = (0, -1). \text{ Distance: } d = \sqrt{(-4-4)^2 + (2-(-4))^2} = \sqrt{100} = 10$$

$$r = 5$$

$$r^2 = 25$$

$$x^2 + (y+1)^2 = 25$$

REF: 061037ge

- 20 ANS:

$$\text{If } r = 5, \text{ then } r^2 = 25. \quad (x+3)^2 + (y-2)^2 = 25$$

REF: 011332ge