

M215 EQUATION of CIRCLE

CONIC SECTIONS

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A circle in the xy -plane has center $(5, 7)$ and radius 2. Which of the following is an equation of the circle?

- A) $(x - 5)^2 + (y - 7)^2 = 4$
- B) $(x + 5)^2 + (y + 7)^2 = 4$
- C) $(x - 5)^2 + (y - 7)^2 = 2$
- D) $(x + 5)^2 + (y + 7)^2 = 2$

2

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What is the radius of the circle in the xy -plane with equation $(x - 9)^2 + (y - 3) = 64$?

- A) 64
- B) 9
- C) 8
- D) 3

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A circle is graphed in the xy -plane. If the circle has a radius of 3 and the center of the circle is at $(4, -2)$, which of the following could be an equation of the circle?

- A) $(x + 4)^2 + (y - 2)^2 = 3$
- B) $(x + 4)^2 - (y - 2)^2 = 3$
- C) $(x - 4)^2 + (y + 2)^2 = 9$
- D) $(x - 4)^2 - (y + 2)^2 = 9$

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In the xy -plane, a circle with radius 2 has center $(0, 0)$. Which of the following is an equation of the circle?

- A) $x^2 + y^2 = 2$
- B) $x^2 + y^2 = 4$
- C) $x^2 - y^2 = 2$
- D) $x^2 - y^2 = 4$

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Which of the following equations describes a circle with radius 10 that passes through the origin when graphed in the xy -plane?

- A) $(x - 5)^2 + (y + 5)^2 = 10$
- B) $(x - 5)^2 + (y + 5)^2 = 100$
- C) $(x - 10)^2 + (y - 10)^2 = 100$
- D) $(x - 5\sqrt{2})^2 + (y + 5\sqrt{2})^2 = 100$

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$$(x - 6)^2 + (y + 5)^2 = 16$$

In the xy -plane, the graph of the equation above is a circle. Point P is on the circle and has coordinates $(10, -5)$. If \overline{PQ} is a diameter of the circle, what are the coordinates of point Q ?

- A) $(2, -5)$
- B) $(6, -1)$
- C) $(6, -5)$
- D) $(6, -9)$

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$$(x - 6)^2 + (y - 3)^2 = 25$$

The graph in the xy -plane of the equation above is a circle. If the circle is translated downward a units such that the circle is tangent to the x -axis, the equation becomes $(x - 6)^2 + (y - 3 + a)^2 = 25$. What is the value of a ?

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Which of the following is an equation of a circle in the xy -plane with center $(0, 4)$ and a radius with endpoint $\left(\frac{4}{3}, 5\right)$?

- A) $x^2 + (y - 4)^2 = \frac{25}{9}$ C) $x^2 + (y - 4)^2 = \frac{5}{3}$
 B) $x^2 + (y + 4)^2 = \frac{25}{9}$ D) $x^2 + (y + 4)^2 = \frac{3}{5}$

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A circle in the xy -plane has equation $(x + 3)^2 + (y - 1)^2 = 25$. Which of the following points does NOT lie in the interior of the circle?

- A) $(-7, 3)$
 B) $(-3, 1)$
 C) $(0, 0)$
 D) $(3, 2)$

10

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$$x^2 + 20x + y^2 + 16y = -20$$

The equation above defines a circle in the xy -plane. What are the coordinates of the center of the circle?

- A) $(-20, -16)$
 B) $(-10, -8)$
 C) $(10, 8)$
 D) $(20, 16)$

11

6

$$x^2 + y^2 - 6x + 8y = 144$$

The equation of a circle in the xy -plane is shown above. What is the diameter of the circle?

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$$x^2 - 10x + y^2 + 6y = 2$$

The graph in the xy -plane of the equation above is a circle. What are the coordinates of the center of the circle?

- A) $(-5, -3)$
 B) $(-5, 3)$
 C) $(5, -3)$
 D) $(5, 3)$

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$$x^2 - 6x + y^2 - 8y = 0$$

The graph of the given equation in the xy -plane is a circle. What is the radius of the circle?

- A) 2
- B) 3
- C) 4
- D) 5

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The graph of $x^2 - 4x + y^2 + 6y - 24 = 0$ in the xy -plane is a circle. What is the radius of the circle?

- A) $2\sqrt{6}$
- B) $\sqrt{11}$
- C) $\sqrt{37}$
- D) $\sqrt{76}$

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$$x^2 - 8x + y^2 - 10y = 40$$

In the xy -plane, the graph of the given equation is a circle. What is the radius of this circle?

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$$x^2 + y^2 + 6x + 5y = -\frac{45}{4}$$

The equation of a circle in the xy -plane is shown. What is the radius of the circle?

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$$x^2 + y^2 + 4x - 2y = -1$$

The equation of a circle in the xy -plane is shown above. What is the radius of the circle?

- A) 2
- B) 3
- C) 4
- D) 9

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In the xy -plane, the graph of $2x^2 - 6x + 2y^2 + 2y = 45$ is a circle. What is the radius of the circle?

- A) 5
- B) 6.5
- C) $\sqrt{40}$
- D) $\sqrt{50}$

1 A
2 C
3 C

4 B
5 D
6 A

7 8
8 A
9 D

10 B
11 26
12 C

13 D
14 C
15 9

16 2
17 A
18 A