

Geometry · Equation of a Circle · Quiz

Common Core G-GPE.A.1 · mathovore.fr

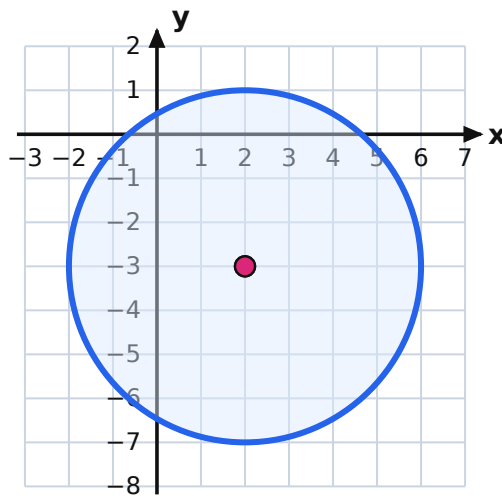
Name: _____ Date: ____/____/____ Score: _____

Ten multiple-choice questions check the standard form of a circle, center and radius, completing the square, and points inside, on or outside a circle. Choose one answer for each, then read the explanation to catch common sign and squaring mistakes.

GeometryCommon Core: G-GPE.A.1

Questions

Question 1



A circle centered at a lattice point.

What is the center of the circle shown?

- A. $(-2, 3)$
- B. $(2, 3)$
- C. $(2, -3)$
- D. $(-3, 2)$

Question 2

Which equation describes the circle with center $(1, -4)$ and radius 3?

- A. $(x-1)^2 + (y+4)^2 = 9$

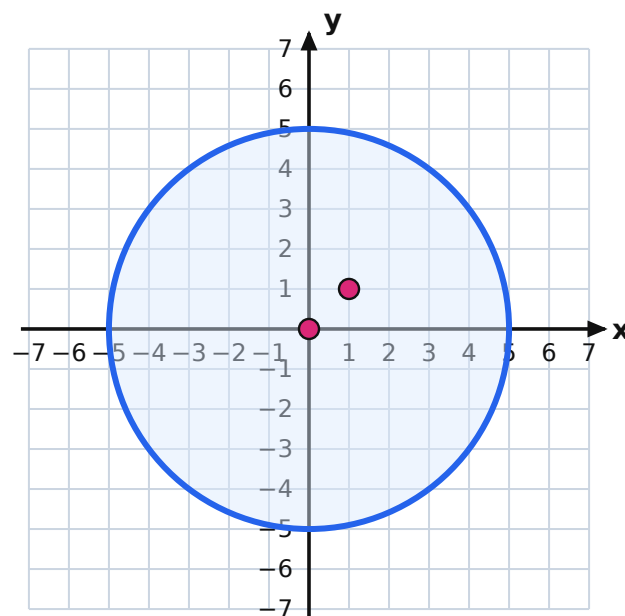
- B. $(x+1)^2+(y-4)^2=9$
- C. $(x-1)^2+(y+4)^2=3$
- D. $(x-1)^2+(y-4)^2=9$

Question 3

What is the radius of the circle $(x-2)^2+(y+6)^2=49$?

- A. 49
- B. $\sqrt{7}$
- C. 14
- D. 7

Question 4



The circle $x^2 + y^2 = 25$.

The circle $x^2+y^2=25$ is shown. Which point lies outside the circle?

- A. $(3,-4)$
- B. $(0,-5)$
- C. $(-2,4)$
- D. $(4,4)$

Question 5

What is $x^2+y^2-8x+2y-8=0$ in standard form?

- A. $(x+4)^2+(y-1)^2=25$
- B. $(x-4)^2+(y+1)^2=9$
- C. $(x-4)^2+(y+1)^2=25$

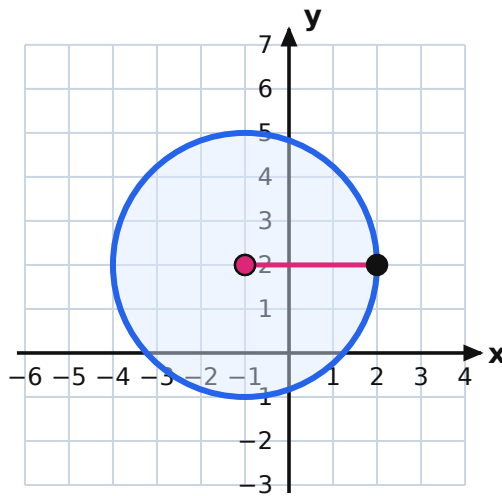
D. $(x-4)^2+(y+1)^2=8$

Question 6

What are the center and radius of the circle $x^2+y^2+6x-4y-3=0$?

- A. $(3,-2)$, radius 4
- B. $(-3,2)$, radius 4
- C. $(-3,2)$, radius 16
- D. $(-6,4)$, radius 4

Question 7



A circle with a horizontal radius.

Which equation matches the graph?

- A. $(x-1)^2+(y+2)^2=9$
- B. $(x+1)^2+(y-2)^2=3$
- C. $(x+1)^2+(y+2)^2=9$
- D. $(x+1)^2+(y-2)^2=9$

Question 8

A circle has a diameter with endpoints $(0,0)$ and $(8,6)$. What is its equation?

- A. $(x-4)^2+(y-3)^2=100$
- B. $(x-8)^2+(y-6)^2=25$
- C. $(x-4)^2+(y-3)^2=25$
- D. $(x-4)^2+(y-3)^2=5$

Question 9

Where is the point $(-3,-1)$ relative to the circle $(x+6)^2+(y-3)^2=25$?

- A. It is inside the circle
- B. It is on the circle
- C. It is outside the circle
- D. It is the center of the circle

Question 10

A circle with center $(3,4)$ is tangent to the x-axis. What is its equation?

- A. $(x-3)^2+(y-4)^2=16$
- B. $(x-3)^2+(y-4)^2=9$
- C. $(x-3)^2+(y-4)^2=25$
- D. $(x-3)^2+(y-4)^2=4$

Answer key

1. **C** - The center is where the circle is balanced: 2 right and 3 down, so (2, -3). Swapping the signs gives (-2, 3).
2. **A** - Use $(x - 1)$ and $(y + 4)$ because the signs flip, and $r^2 = 9$. Writing 3 on the right forgets to square the radius.
3. **D** - The right side is r^2 , so $r = 7$. The number 49 is the square of the radius.
4. **D** - For (4, 4): $16 + 16 = 32$, which is greater than 25. The points (3, -4) and (0, -5) give 25 and lie on the circle, and (-2, 4) gives 20.
5. **C** - Move the 8 to the right side, then add 16 and 1 to both sides: $8 + 16 + 1 = 25$. Subtracting the 8 instead of adding it gives 9.
6. **B** - Complete the square: $(x + 3)^2 + (y - 2)^2 = 3 + 9 + 4 = 16$, so the center is (-3, 2) and $r = 4$.
7. **D** - The center is (-1, 2) and the radius is 3, so $(x + 1)^2 + (y - 2)^2 = 9$.
8. **C** - The center is the midpoint (4, 3), and the radius is the distance to (0, 0), which is 5, so $r^2 = 25$. A diameter of 10 is not the radius.
9. **B** - Substitute: $3^2 + (-4)^2 = 9 + 16 = 25$, which equals r^2 , so the point is on the circle.
10. **A** - The radius equals the distance to the x-axis, which is 4, so $r^2 = 16$. Using 3 would make the circle tangent to the y-axis.

Remember:

- Standard form: $(x-h)^2 + (y-k)^2 = r^2$, with center (h,k) and radius r .
- The signs inside the parentheses are opposite to the coordinates of the center.
- The number on the right side is r^2 , so take its square root to get the radius.
- Complete the square on both variables to rewrite $x^2 + y^2 + Dx + Ey + F = 0$ in standard form.