

9.3: Circles

“I WILL...

Identify and label all parts of a circle”

I. Introduction to Conics

- A. A conic (or conic section) is a plane curve that can be obtained by intersecting a cone
- B. Four shapes that make up conic sections: circle, ellipse, hyperbola, and parabola

II. Definitions

- A. A _____ is the set of all points in a plane that is a fixed distance from a fixed point
- B. The _____ of a circle is the fixed equidistance point of the circle
- C. The _____ of a circle is the fixed equidistance length of the circle
- D. A _____ is a line in the same plane as the circle that intersects at exactly one point

III. Equations

- A. Standard Form Equation: _____
- B. Center: _____ known as _____
- C. Radius: _____

IV. Tangent Steps

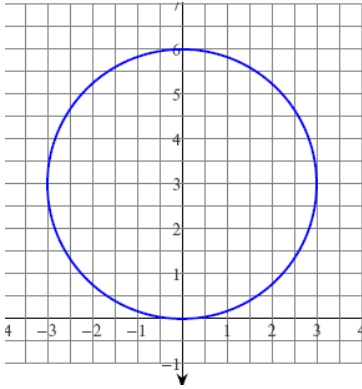
- A. Determine the two points – usually the center and a point
- B. Determine the slope of radius and take the _____
- C. Use point–slope formula to write equation

V. Model Problems

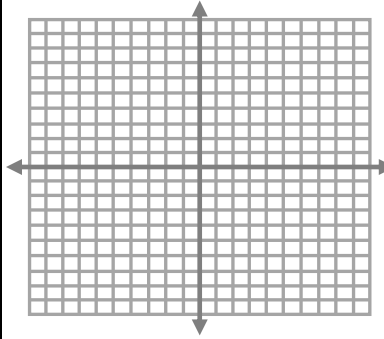
Ex 1: Name the center and the radius of this circle, $(x + 2)^2 + (y - 3)^2 = 16$	Your Turn: Name the center and the radius of this circle, $(x + 1/2)^2 + (y - 5/2)^2 = 14$
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Ex 2: Identify the equation of a circle with the given graph below.

Each line is worth 0.5 pt

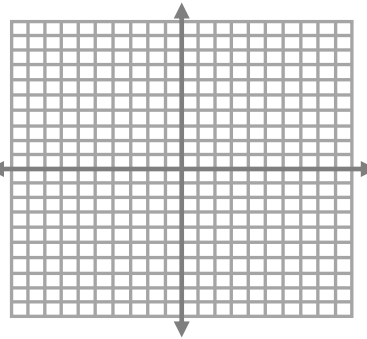


Ex 3: Write an equation of the circle with its center is at $(-2, 3)$, the radius is 4, and graph it.



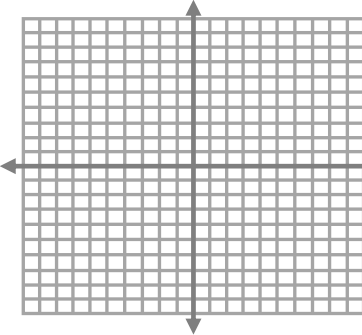
Center: _____
Equation: _____

Your Turn: Write an equation of the circle with its center is at $(-2, 3)$, the radius is 4, and graph it.



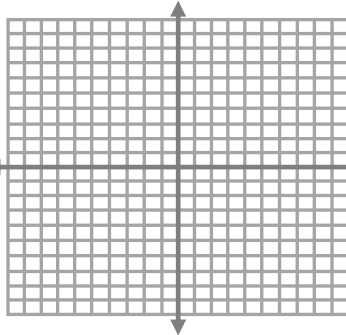
Center: _____
Equation: _____

Ex 4: Write and graph the equation in standard form with the given center of $(2, -3)$ and a point $(1, 0)$.



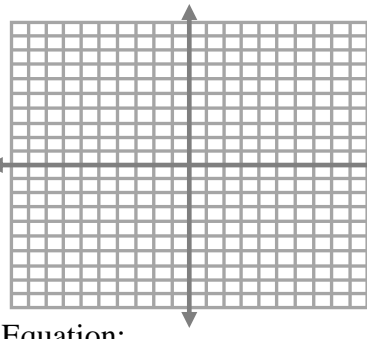
Equation: _____

Ex 5: Write a circle equation whose center is at the origin and passes through $(1, -6)$.



Equation: _____

Your Turn: Write a circle equation whose endpoints of a diameter are $(-5, 2)$ and $(3, 6)$. (Remember your geometry formulas!)



Equation: _____

Ex 6: Write the equation of the line tangent to the circle $x^2 + y^2 = 29$ at the point $(2, 5)$.

Ex 7: Write the equation of the line tangent to the circle, $(x - 1)^2 + (y + 2)^2 = 25$ at the point $(5, -5)$.

Your Turn: Write the equation of the line tangent to the circle $(x - 1)^2 + (y + 2)^2 = 26$ at the point on the circle $(2, 3)$.