Equation of Circle

1. A circle with center $(2, -5)$ is tangent to the x-axis.

 a) What is the radius of the circle?

 b) What is the equation of the circle?

2. Two points in the plane, $A(-3,8)$ and $B(17,8)$, represent the endpoints of the diameter of a circle.

 a) What is the center of the circle? Explain.

 b) What is the radius of the circle? Explain.

 c) Write the equation of the circle.

3. Consider the circles with the following equations:

$$x^2 + y^2 = 25 \text{ and}$$
$$(x - 9)^2 + (y - 12)^2 = 100.$$

 a) What are the radii of the circles?

 b) What is the distance between the centers of the circles?

Equation of Circle

1. A circle with center $(2, -5)$ is tangent to the x-axis.

 a) What is the radius of the circle?

$$r = 5$$

 b) What is the equation of the circle?

$$(x - 2)^2 + (y + 5)^2 = 25$$

2. Two points in the plane, $A(-3,8)$ and $B(17,8)$, represent the endpoints of the diameter of a circle.

 a) What is the center of the circle? Explain.

$(7,8)$; the midpoint of the diameter

 b) What is the radius of the circle? Explain.

10; the distance from one endpoint to the center

 c) Write the equation of the circle.

$$(x - 7)^2 + (y - 8)^2 = 100$$

3. Consider the circles with the following equations:

$$x^2 + y^2 = 25 \text{ and}$$
$$(x - 9)^2 + (y - 12)^2 = 100.$$

 a) What are the radii of the circles?

The radii are 5 and 10.

 b) What is the distance between the centers of the circles?

$$d = \sqrt{(9 - 0)^2 + (12 - 0)^2}$$
$$d = 15$$

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