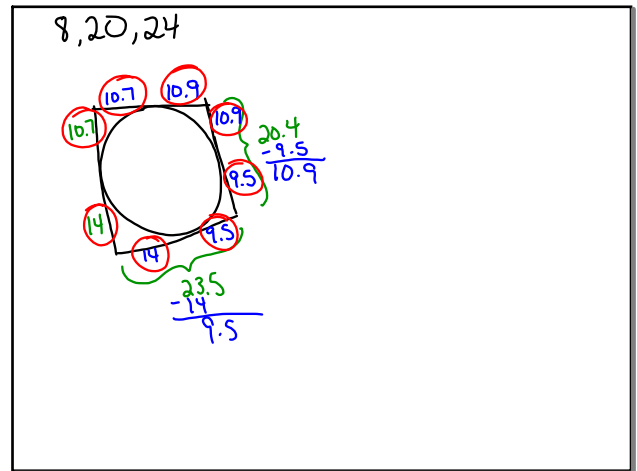


# Equations of Circles



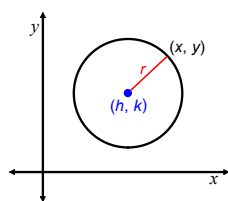
title

Apr 19-9:45 AM

## Standard Equation of a Circle

The standard equation of a circle with center  $(h, k)$  and radius  $r$  is:

$$(x - h)^2 + (y - k)^2 = r^2$$



➤ the radius,  $r$ , is the *distance* between the center  $(h, k)$  and  $(x, y)$ , any point on the circle

Determine the center and the radius of the circle with the given equation.

$$(x - 8)^2 + (y + 1)^2 = \sqrt{16}$$

Center  $(8, -1)$   
Radius 4

$$x^2 + y^2 = \sqrt{289}$$

C  $(0, 0)$   
 $r = 17$

Determine the diameter of the circle with the given equation.

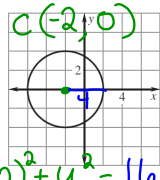
$$(x + 5)^2 + (y - 3)^2 = \sqrt{196}$$

$r = 14$   
 $d = 2 \cdot 14$   
 $= 28$

Use the given information to write the standard equation of the circle.

center  $(-6, 7)$  and radius  $12^2$

$(X+6)^2 + (y-7)^2 = 144$



$(x+2)^2 + y^2 = 16$

~~The center is  $(0, 5)$  and a point on the circle is  $(3, 9)$ .~~

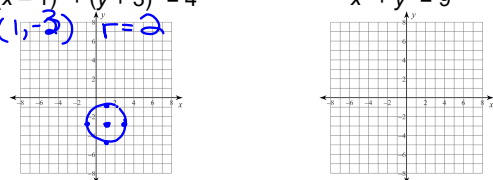
examples

Use the given information to graph the equation.

$(x - 1)^2 + (y + 3)^2 = 4$

$x^2 + y^2 = 9$

$C(1, -3) \quad r=2$



~~Determine whether the point lies on the circle described by the equation  $(x + 4)^2 + (y - 11)^2 = 169$ .~~

~~$(7, 5)$                        $(1, -1)$~~

examples

