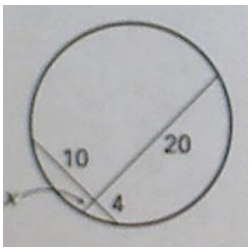
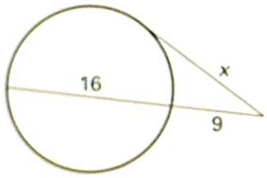
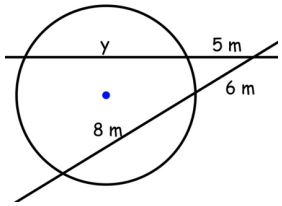
## Bell Work

Find the value of the missing variable



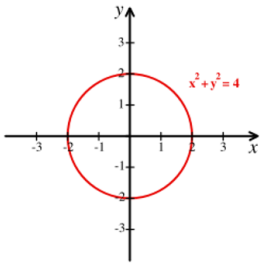



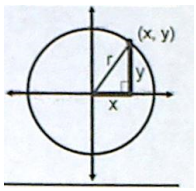

## Write and Graph Equations of Circles

## Circle Centered at the Origin

$^2 + \ ^2 = \ ^2$

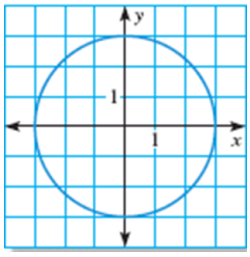
(x, y) represents any point on a circle with center at the origin and r is the radius




## Example 1

Write the equation of the circle shown.



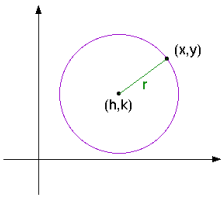
## Example 2

Write the standard equation of the circle with the given center and radius.

Center (0, 0), radius 2.5

- You can write an equation of any circle if you know the radius and coordinates of the center
- Standard equation of a circle with center (h, k) and radius r

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




## Example

Write the standard equation of a circle with center (0, –9) and radius 4.2

## Example

Write the standard equation of the circle with the given center and radius.

Center (–2, 5), radius 7

## Practice

Give the center and radius of the circle

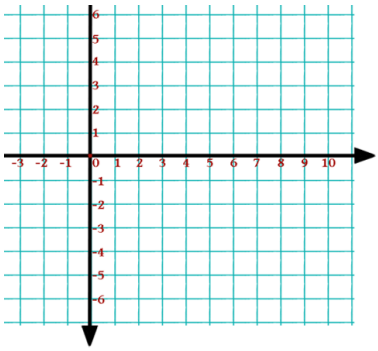
7) $^2 + \ ^2 = 25$

8) $^2 + (-4)^2 = 9$

12) $(+4)\,2 + (-2)\,2 = 25$

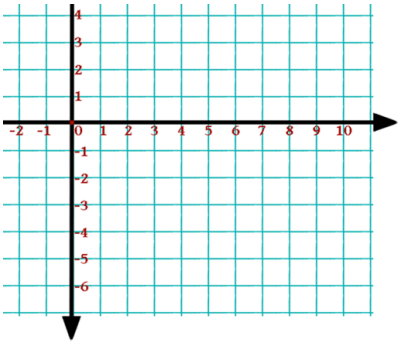
## Example

The equation of a circle is $(x-4)^2 + (y+2)^2 = 36$. Graph the circle



## Example

The equation of a circle is $(x-4)^2 + (y+3)^2 = 16$. Graph the circle.



## Homework

10.7 Worksheet
#1-24all

Bell Work

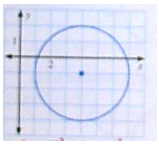
$(x - h)^2 + (y - k)^2 = r^2$

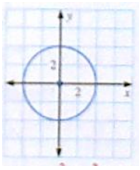
Write the standard equation of the circle with the given center and radius

Center (0, 0), Radius 10

Center (-3, 2), Radius 8

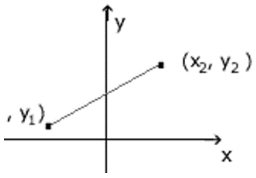
4)





## Distance Formula

- The distance (d) between any two points (x1, y1) and (x2, y2) is:

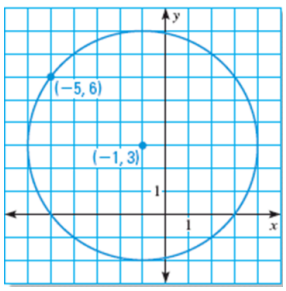



$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

## Example

The point (–5, 6) is on a circle with center (–1, 3). Write the standard equation of the circle.

$$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

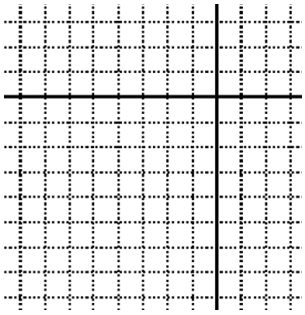



## Example

The point (3, 4) is on a circle whose center is (1, 4). Write the standard equation of the circle.

## Example

The equation of a circle is $(x + 8)^2 + (y + 5)^2 = 121$. Graph the circle. (Count by 3's on Graph)



## Homework

10.7 Worksheet
#25-40all

## Practice

Determine the diameter of the circle with the given equation

31) $(x - 3)^2 + (y - 5)^2 = 16$

Determine whether the point lies on the circle described by the equation $(x - 2)^2 + (y - 6)^2 = 25$

37) (2, 6)