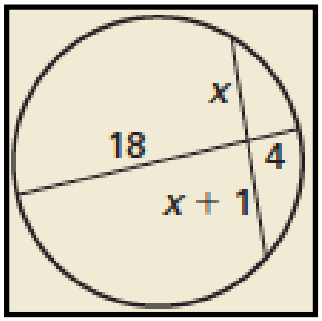
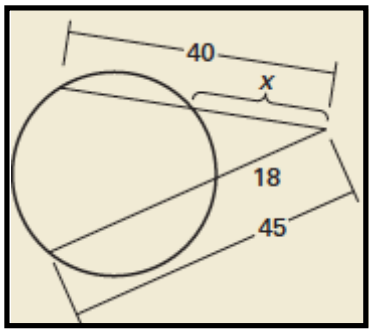
Bellwork
03/23/2012

Find the value of *x*. Round to the nearest tenth, if necessary.

1. 

2. 

No Bellwork
03/26/2012

Geometry
10.7 Write and Graph Equations of Circles
Standard(s): 3, 10

Vocabulary:

Let (x, y) represent any point on a circle with center at the origin and radius r. By the Pythagorean Theorem,

$$x^2 + y^2 = r^2.$$

This is the equation of a circle with radius r and center at the origin.

KEY CONCEPT *For Your Notebook*

Standard Equation of a Circle

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

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

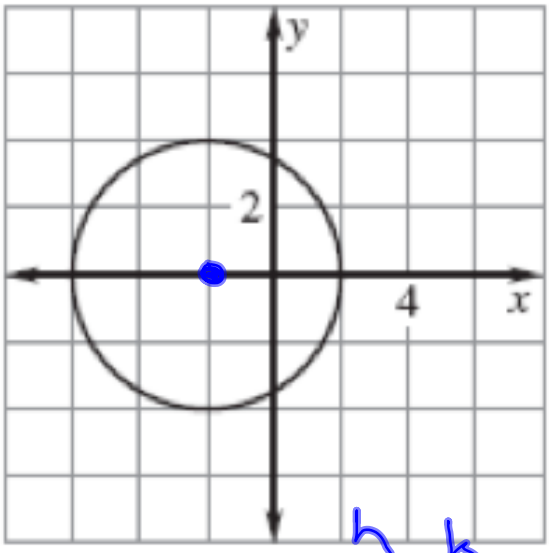
$(x-6)^2+(y+5)^2=\sqrt{25}$

$r=5$

$(6,-5)$

Write an Equation Given a Graph

Write the standard equation.

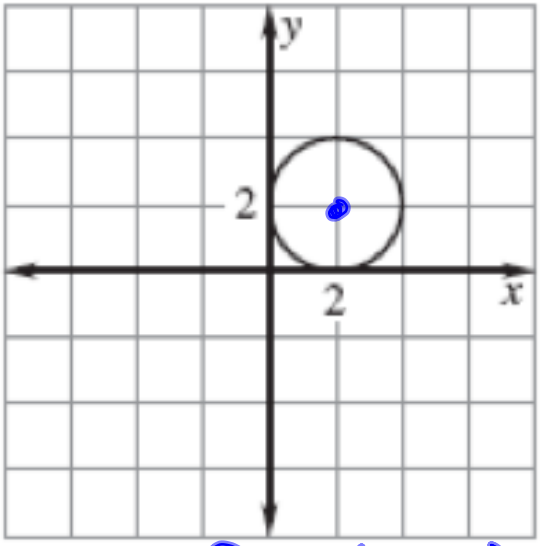


h k

$r = 4 \quad (-2, 0)$

$(x+2)^2 + (y+0)^2 = 16$

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



$r = 2 \quad (2, 2)$

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

Write an Equation Given Info

Write the standard equation using the given center and radius.

h k
Center: (-3,0) **Radius: 5**

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

$$(x+3)^2+(y-0)^2=5^2$$

$$(x+3)^2+y^2=25$$

h, k
Center: (4,-7) **Radius: 13**

$$(x-4)^2+(y+7)^2=169$$

Given a Center and Point on Circle

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

h k

Center: (2,4) **Point: (-3, 16)**

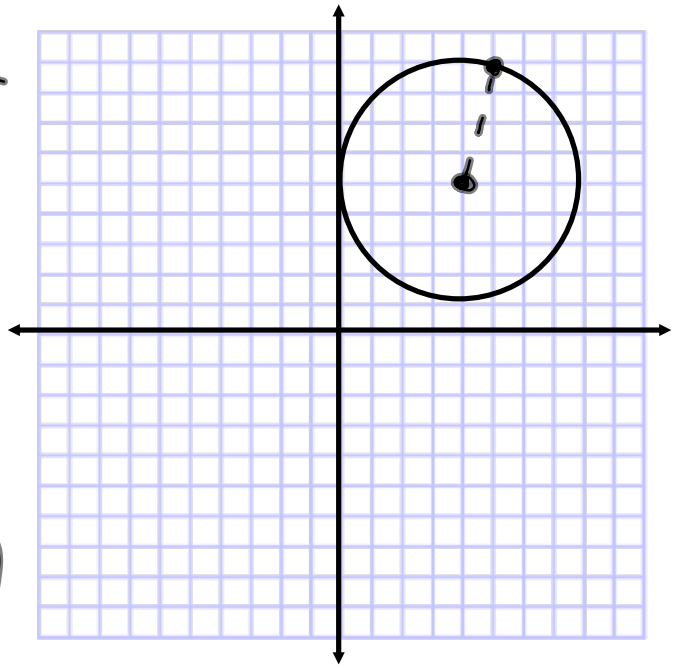
$\sqrt{(-3-2)^2+(16-4)^2} = r$

$\sqrt{(-5)^2+(12)^2}$

$\sqrt{25+144}$

$\sqrt{169}$

$r = 13$, $(2, 4)$ (h k)



$(x-2)^2+(y-4)^2=169$

Determine a Diameter

Determine the diameter of the circle with the given equation.

$(x+2)^2+(y+1)^2=1$

$r=1$

$d=2$

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

$r=4$

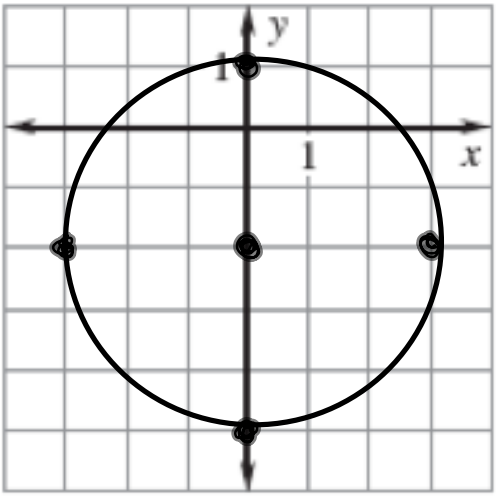
$d=8$

Graphing a Standard Equation

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

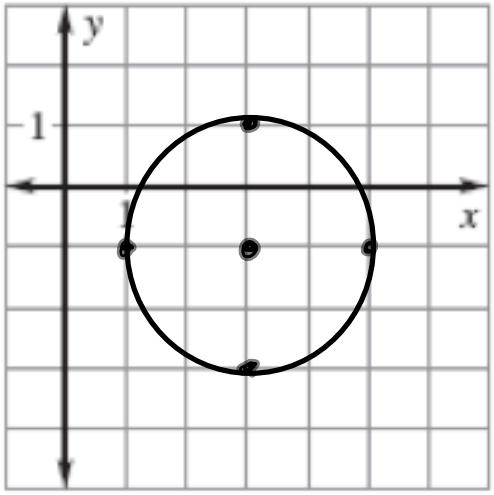
$x^2+(y+2)^2=9$

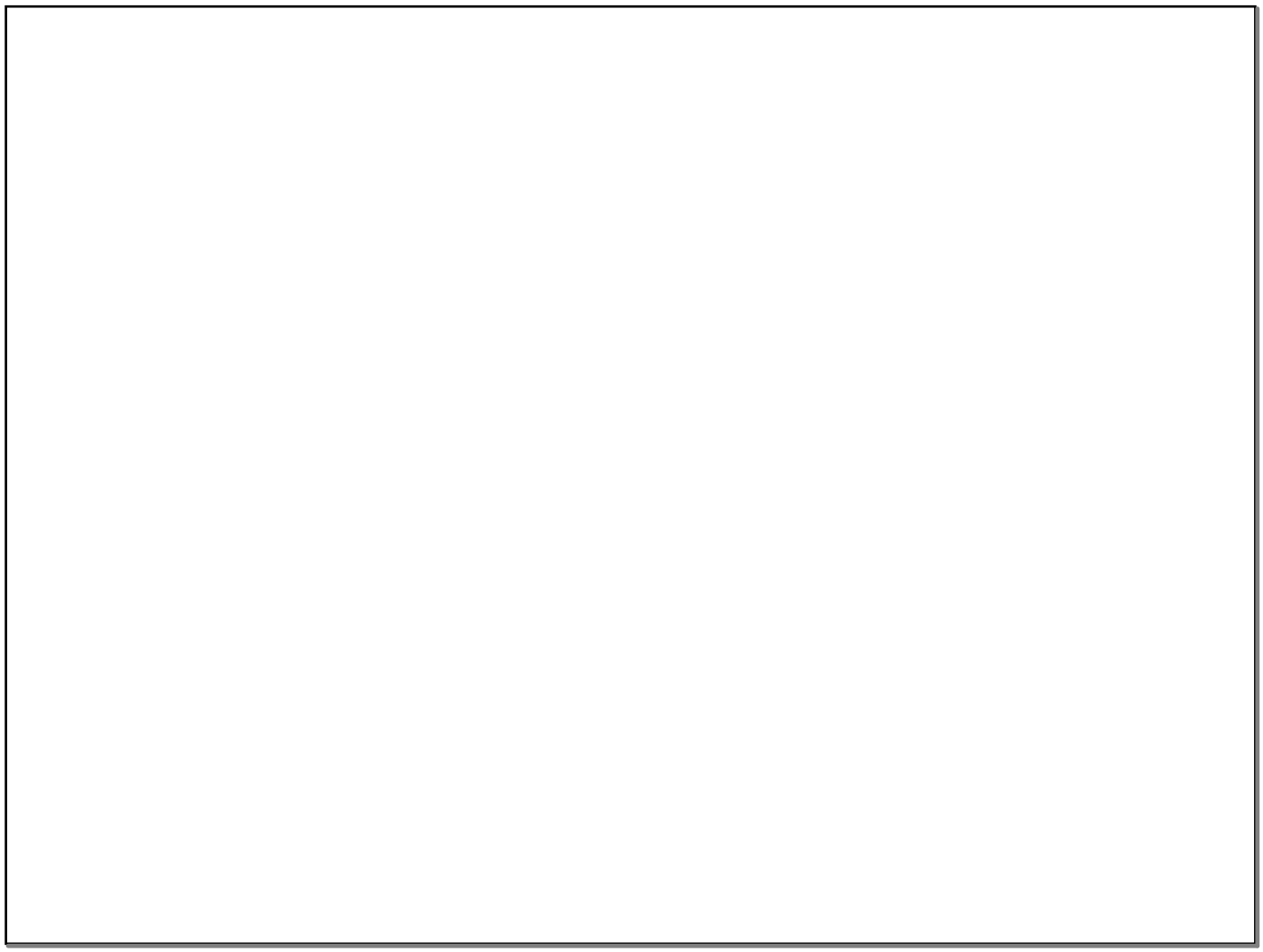
$(0,-2), r=3$



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

$(3,-1), r=2$



Homework Assignment

Worksheet 10.7B