Circle form $x^2 + y^2 = r^2$ with center (0,0) radius r

Circle form $(x-h)^2 + (y-k)^2 = r^2$ with center (h,k) radius r

1) State whether the following statement is true or false.

The radius of the circle $x^2 + y^2 = 9$ is 3.

_____

Choose the correct answer below.

○ False

★ True

2) State whether the following statement is true or false.

The center of the circle $(x + 3)^2 + (y - 2)^2 = 13$ is $(3, -2)$.

_____

Choose the correct answer below.

Center is (-3,2)

★ False

○ True

3) Choose the equation of a circle with radius 8 and center $(3, -3)$.

⸻ (...) ⸻

Choose the correct answer below.

○ A. $(x + 3)^2 + (y - 3)^2 = 8$

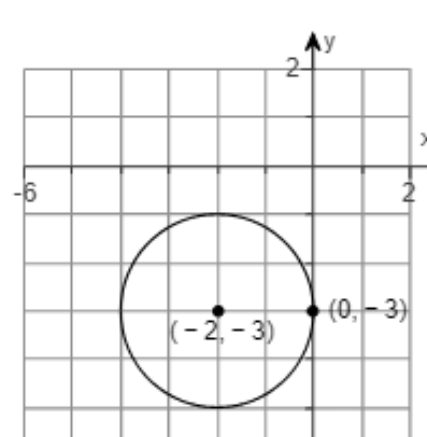★ B. $(x - 3)^2 + (y + 3)^2 = 64$

$(x-h)^2 + (y-k)^2 = r^2$ with center (h,k) radius r

4) Find the center and radius of the circle. Write the standard form of the equation.

The center of the circle is $(h,k) = (-2, -3)$.
(Type an ordered pair.)

The radius of the circle is r = 2.

The equation of the circle in standard form is $(x + 2)^2 + (y + 3)^2 = 4$.
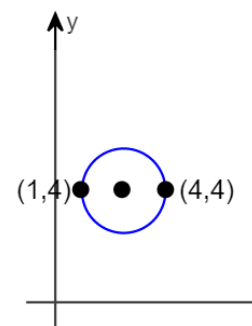(Type your answer in standard form.)

5)

Find the center and radius of the circle. Write the standard form of the equation.

center: *4+1=5 then divide by 2* $= \dfrac{5}{2}$

radius: *4-1=3 then divide by 2 =* $\dfrac{3}{2}$

The center of the circle is $\left(\dfrac{5}{2}, 4\right)$.

(Type an ordered pair.)

The radius of the circle is $\dfrac{3}{2}$.

square radius

The standard form of the equation is $\left(x - \dfrac{5}{2}\right)^2 + (y - 4)^2 = \dfrac{9}{4}$.

Another 5)

Find the center and radius of the circle. Write the standard form of the equation.

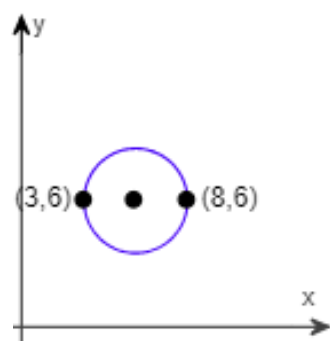center: *8 + 3 = 11 then divide by 2* $= \dfrac{11}{2}$

radius: *8 − 3 = 5 then divide by 2 =* $\dfrac{5}{2}$

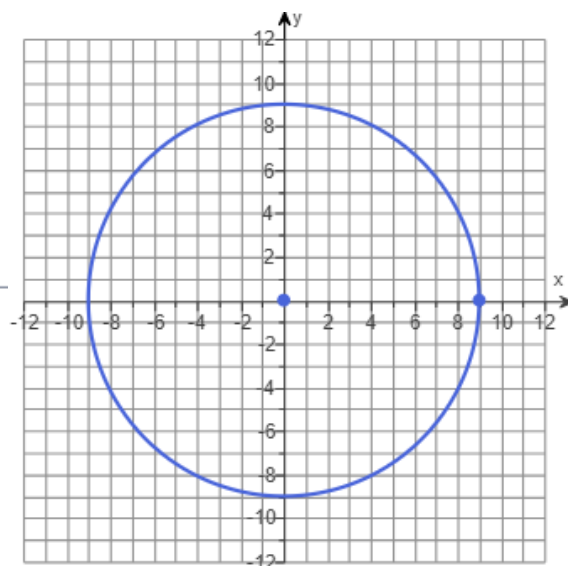The center of the circle is $\left(\dfrac{11}{2}, 6\right)$.

(Type an ordered pair.)

The radius of the circle is $\dfrac{5}{2}$.

The standard form of the equation is $\left(x - \dfrac{11}{2}\right)^2 + (y - 6)^2 = \dfrac{25}{4}$.

6) A circle has the equation $x^2 + y^2 = 81$.
(a) Find the center (h,k) and radius r of the circle.
(b) Graph the circle.
(c) Find the intercepts, if any, of the graph.

(a) The center of the circle is $(0,0)$.
(Type an ordered pair, using integers or decimals.)

The radius of the circle is 9.
(Type an integer or a decimal.)

(b) Use the graphing tool to graph the circle.

(c) What are the intercepts? Select the correct choice below and, if necessary, fill in the answer box within your choice.

*A. The intercept(s) is/are $(-9,0),(9,0),(0,-9),(0,9)$.   x and y intercepts
(Type an ordered pair. Use a comma to separate answers as needed. Type exact answers for each coordinate, using radicals as needed.)
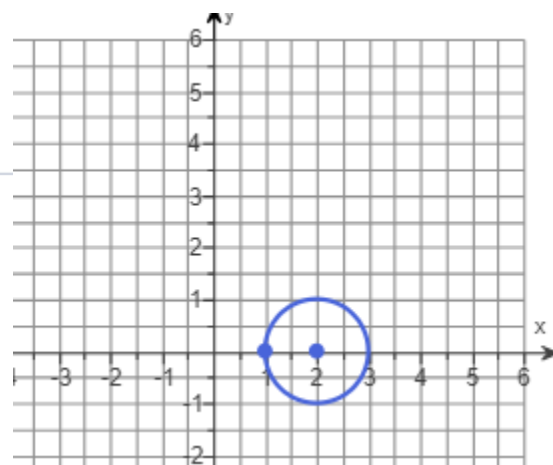
○ B. There are no intercepts.

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7) A circle has the equation $2(x-4)^2 + 2y^2 = 18$.
(a) Find the center (h,k) and radius r of the circle.
(b) Graph the circle.
(c) Find the intercepts, if any, of the graph.

(a) The center of the circle is $(4,0)$. Change sign
(Type an ordered pair, using integers or decimals.)

The radius of the circle is 3.
(Type an integer or a decimal.)
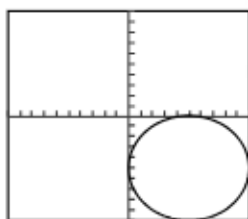
(b) Use the graphing tool to graph the circle.

(c) What are the intercepts? Select the correct choice below and, if necessary, fill in the answer box within your choice.

A. The intercept(s) is/are $(1,0),(7,0)$.

8) Drag each of the equations given above into the appropriate area below. Each graph is shown in a [10,10,1] viewing window.
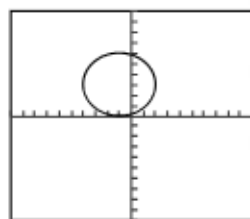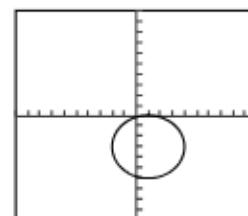
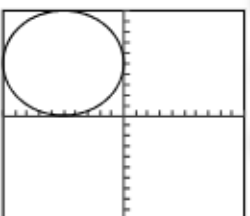Look at the center of each

(a)

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

(b)

$(x+1)^2 + (y-3)^2 = 9$

(c)

$(x-1)^2 + (y+3)^2 = 9$

(d)

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

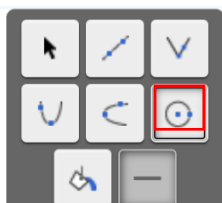**9)** Write the standard form of the equation of the circle with radius r and center (h,k). Then graph the circle.

$r = 4$; $(h,k) = (0, -4)$

The standard form of the equation of this circle is
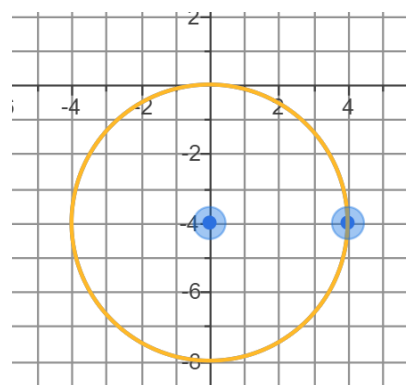$x^2 + (y+4)^2 = 16$.

Graph the circle.   plot the center then

move right 4 and

plot point to make the circle
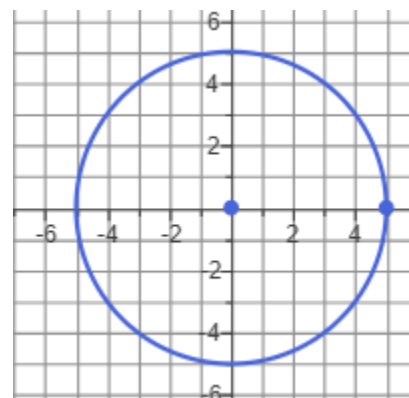
10) Write the standard form of the equation of the circle of radius $r = 5$ and center $(h,k) = (0,0)$. Graph the circle.

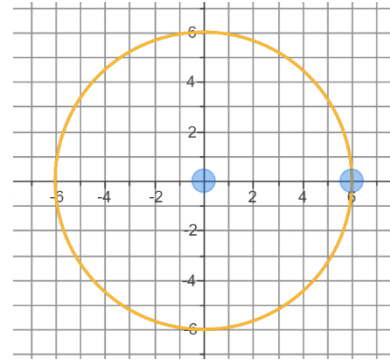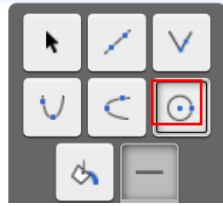· · ·

The standard form of the equation of this circle is
$x^2 + y^2 = 25$.

Use the graphing tool to graph a circle with center (0,0) and a radius of 5.

11) Sketch the graph of the equation. If the graph is a parabola, find its vertex. If the graph is a circle, find its center and radius.

$x^2 + y^2 = 36$ center (0,0)   radius 6

12) Sketch the graph of the equation. If the graph is a parabola, find its vertex. If the graph is a circle, find its center and radius.

$2x^2 + 2y^2 = 72$ Divide all terms by 2 first

Use the graphing tool to graph the equation.

$x^2 + y^2 = 36$

center (0,0)

radius 6

13) Write an equation of the circle with the center (0,0) and radius $\sqrt{14}$. $\sqrt{14}^2 = 14$

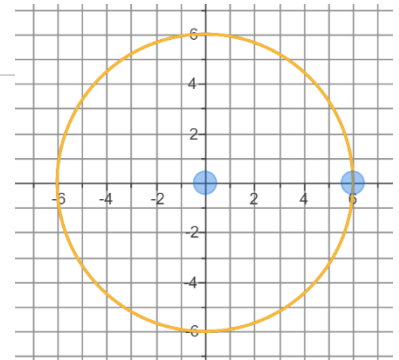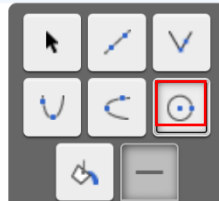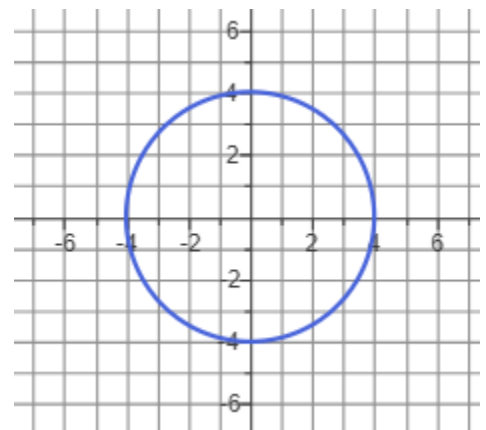The equation is $x^2 + y^2 = 14$. (Type your answer in standard form.)

14) Sketch the graph of the equation. If the graph is a parabola, find its vertex. If the graph is a circle, find its center and radius.

$x^2 + y^2 = 16$

B. The graph is a circle with radius 4.
(Simplify your answer. Type an exact answer, using radicals as needed.)
The center is located at (0,0).
(Type an ordered pair.)

15) Sketch the graph of the equation. If the graph is a parabola, find its vertex. If the graph is a circle, find its center and radius.
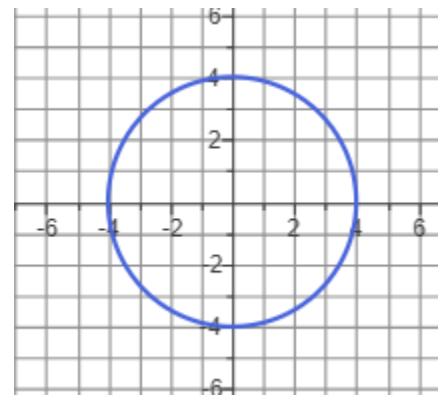
$$5x^2 + 5y^2 = 80$$

Divide all terms by 2 first

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

center (0,0)

radius 4

B. The graph is a circle with center (0,0).
(Type an ordered pair.)
The radius is 4.
(Simplify your answer. Type an exact answer, using radicals as needed.)

16) A   circle   is the set of all points in a plane that are the same distance from a fixed point.

The fixed point is called the center.

17) The distance from the center of a circle to any point of the circle is called the radius.

18) Find the equation of the circle having the given center and radius.   Write the equation of the circle.

Center (0,0), radius 9

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

$x^2 + y^2 = 81$ (Simplify your answer.)

19) Find an equation of the circle having the given center that passes through the given point.

The center is (0, 0) and the point is (− 1, 5).   radius is distance

Write the equation for the circle.

$$\sqrt{(-1)^2 + 5^2} = \sqrt{26}$$

$x^2 + y^2 = 26$ (Simplify your answer.)

*shortcut: square both and add

$$(-1)^2 + (5)^2 = 26$$