Identify the center and radius of each circle.

1) $(x-2)^2+(y-4)^2=36$

Center: (2, 4) Radius: 6

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

Center: (5, 0) Radius: 5

3) $x^2+y^2=49$

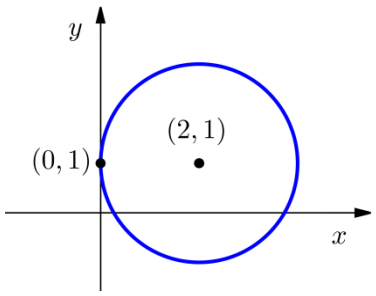
Center: (0, 0) Radius: 7

4) $x^2+(y+5)^2=\frac{1}{9}$

Center: $(0,-5)$ Radius: $\frac{1}{3}$

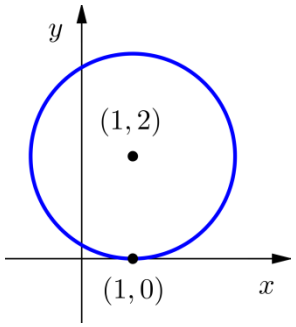
Write the standard form of the equation of each circle shown.

5)



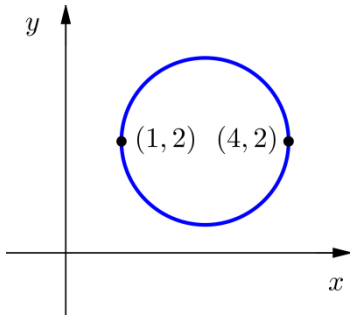
$(x-2)^2+(y-1)^2=4$

6)



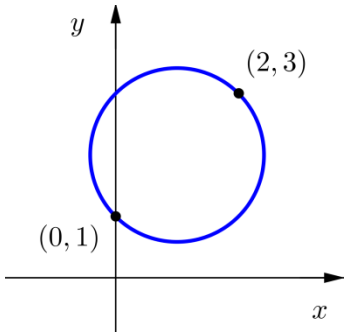
$(x-1)^2+(y-2)^2=4$

7)



$\left(x-\frac{5}{2}\right)^2+(y-2)^2=\frac{9}{4}$

8)



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

Write the standard form of the equation of each circle described.

9) Center: $(0, 0)$ Radius: 5

$\boxed{x^2 + y^2 = 25}$

10) Center: $(-4, 7)$ Radius: $\sqrt{3}$

$\boxed{(x+4)^2 + (y-7)^2 = 3}$

11) Center: $(6, 1)$, tangent to the y-axis.

$\boxed{(x-6)^2 + (y-1)^2 = 36}$

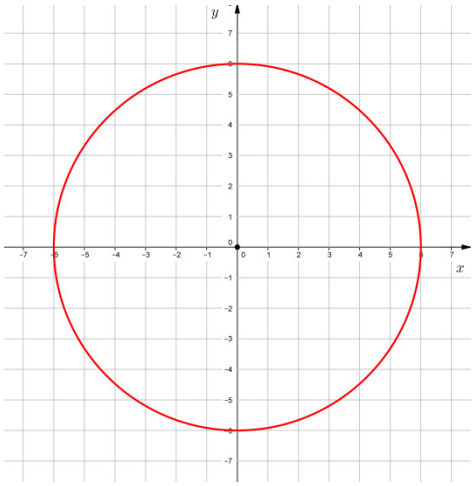
12) Center: $(3, -2)$, tangent to $y = 2$

$\boxed{(x-3)^2 + (y+2)^2 = 16}$

Write the standard form of each equation. Then graph the equation.

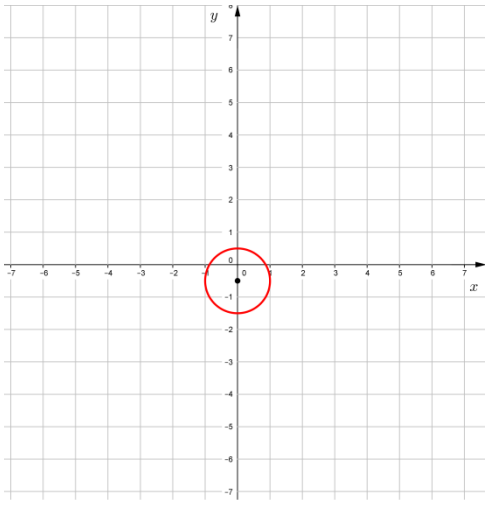
13) $36 - x^2 = y^2$

$\boxed{x^2 + y^2 = 36}$



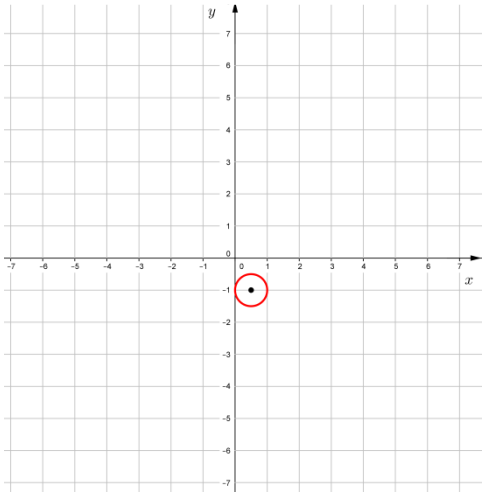
14) $x^2 + y^2 + y = \frac{3}{4}$

$\boxed{x^2 + \left(y + \frac{1}{2}\right)^2 = 1}$



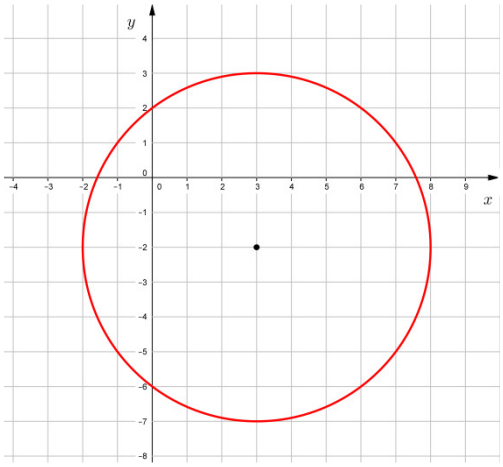
15) $x^2+y^2-x+2y+1=0$

$$\left(x-\frac{1}{2}\right)^2+(y+1)^2=\frac{1}{4}$$



16) $2x^2+2y^2-12x+8y-24=0$

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



Write the standard form of the equation of the circle that passes through the points with the given coordinates.

17) $(7,-1),(11,-5),(3,-5)$

$$(x-7)^2+(y+5)^2=16$$

18) $(-2,3),(6,-5),(0,7)$

$$(x-5)^2+(y-2)^2=50$$

Find an equation of the circle described. (A Sketch may be helpful.)

19) Center in quadrant II, radius 3 and tangent to the y-axis at $(0, 4)$.

$$\boxed{(x+3)^2+(y-4)^2=9}$$

20) Center on the line $y-4=0$ and tangent to the x-axis at $(-2, 0)$.

$$\boxed{(x+2)^2+(y-4)^2=16}$$

21) Center in quadrant four, tangent to the lines $x=1$, $x=9$, and $y=0$.

$$\boxed{(x-5)^2+(y+4)^2=16}$$

22) Tangent to both coordinate axes and the line $x=-8$. (Two answers)

$$\boxed{(x+4)^2+(y-4)^2=16}$$
$$\boxed{(x+4)^2+(y+4)^2=16}$$