

8.3 - Equations of Circles

Use the information provided to write the standard form equation of each circle.

1) Center: $(-11, -8)$
Radius: 2

2) Center: $(10, -4)$
Radius: 5

3) Center: $(-2, -13)$
Radius: 2

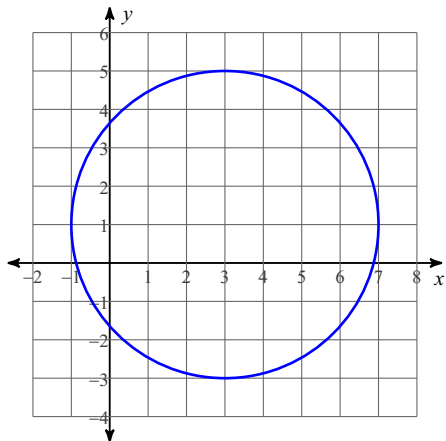
4) Center: $(-12, 12)$
Radius: 3

5) Center: $(0, 0)$
Radius: 2

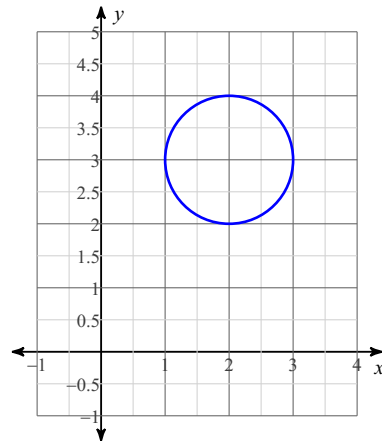
6) Center: $(0, 0)$
Radius: $\sqrt{2}$

Write the equation in standard form of each circle.

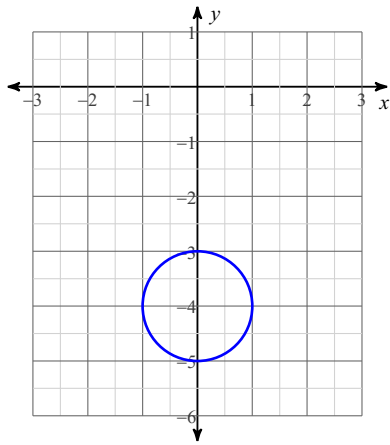
7)



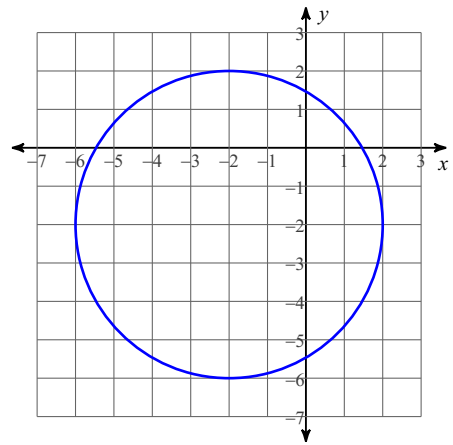
8)



9)

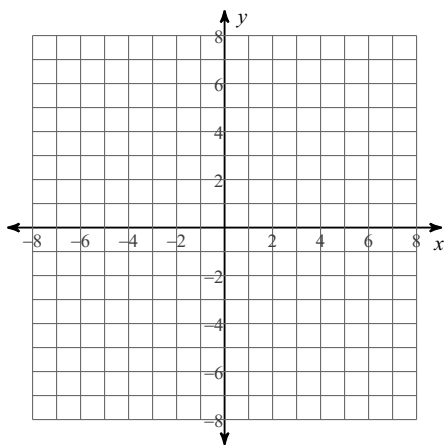


10)

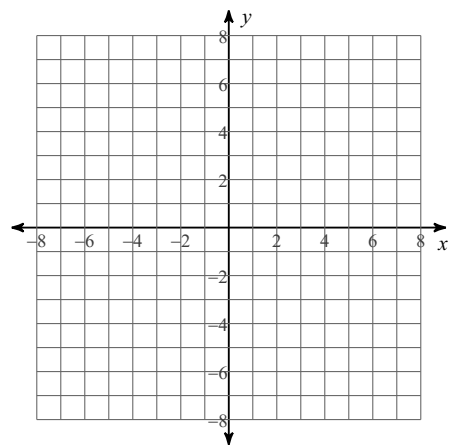


Identify the center and radius of each. Then sketch the graph.

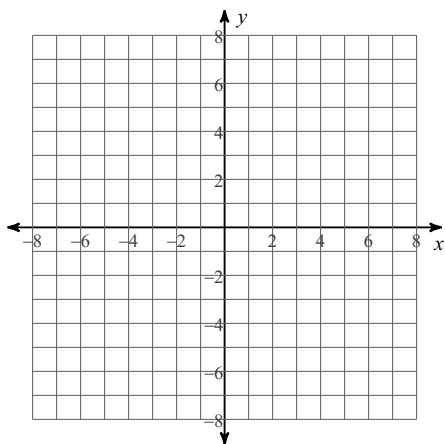
11) $(x + 3)^2 + (y + 4)^2 = 1$



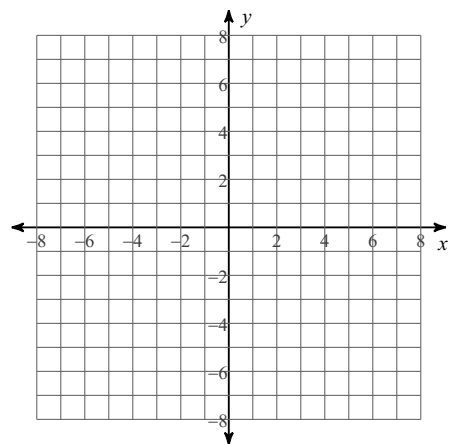
12) $(x - 1)^2 + (y - 1)^2 = 9$



13) $(x + 1)^2 + (y + 4)^2 = 5$

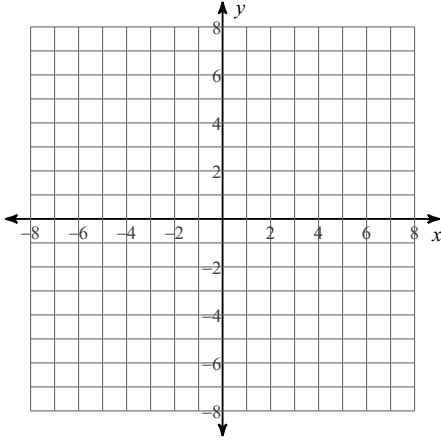


14) $(x - 2)^2 + y^2 = 15$

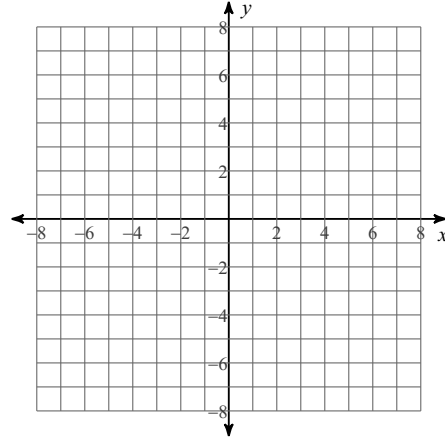


Rewrite each equation in standard form, identify the center and radius of each, and sketch the graph.

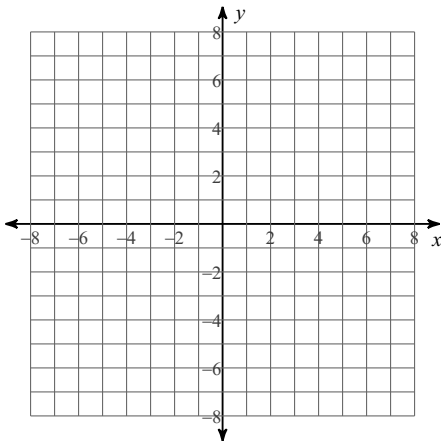
15) $-6x + x^2 - 4y + y^2 = -4$



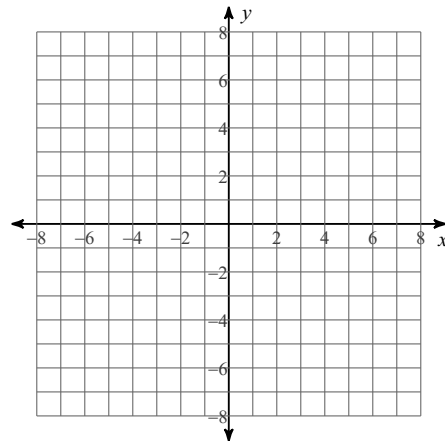
16) $1 - 2y + y^2 = 6x - x^2$



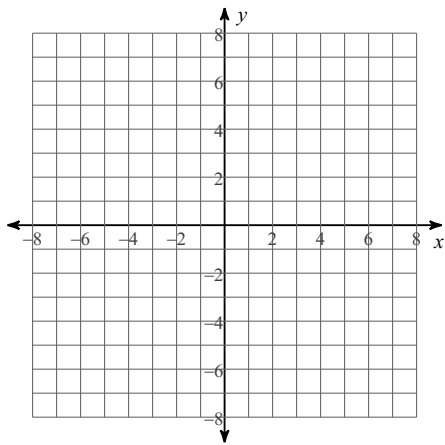
17) $19 - 8x + x^2 = 4y - y^2$



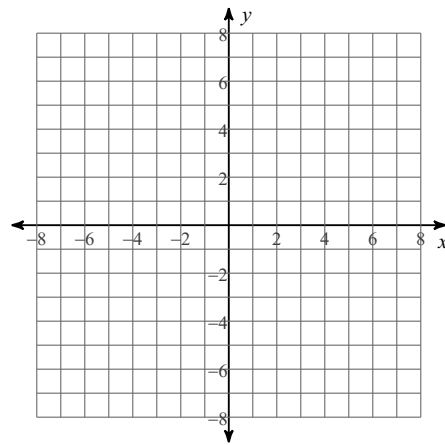
18) $-28 + y^2 = -2x + 2y - x^2$



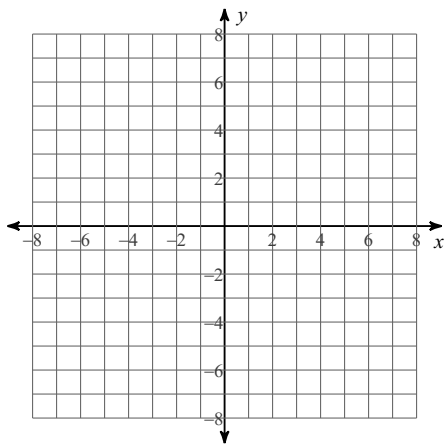
$$19) y^2 + 28 = -8y - 8x - x^2$$



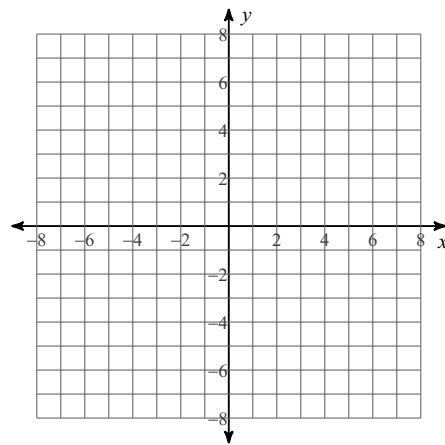
$$20) x^2 + 21 - 8x = -y^2 + 6y$$



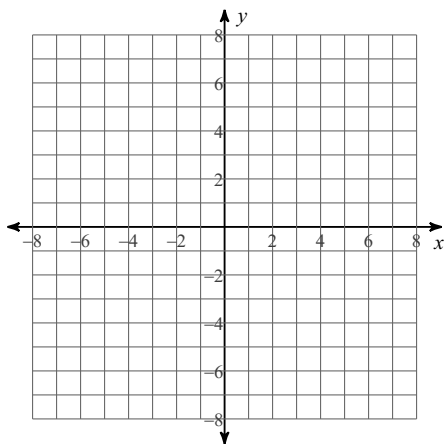
$$21) y^2 - 35 + x^2 = 2y$$



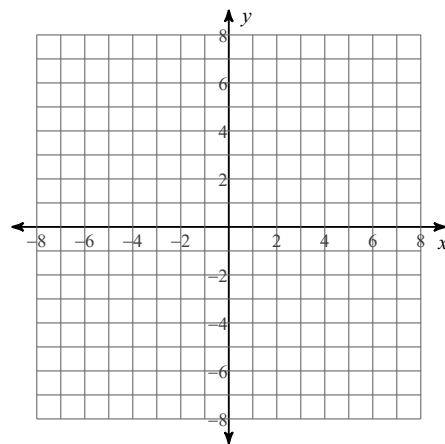
$$22) y^2 - 4x = -1 - 4y - x^2$$



$$23) x^2 + y^2 - 6x - 2y + 6 = 0$$



$$24) x^2 = -y^2 - 4x - 4y + 16$$



Use the information provided to write the standard form equation of each circle.

25) Center: $(3, -15)$
Point on Circle: $(0, -13)$

26) Center: $(-9, -14)$
Point on Circle: $(-8, -16)$

27) Center: $(-11, -5)$
Tangent to the y-axis

28) Center: $(6, -4)$
Tangent to the x-axis

29) Ends of a diameter: $(-10, -13)$ and $(4, -9)$

30) Ends of a diameter: $(-8, -9)$ and $(2, 9)$

8.3 - Equations of Circles

Use the information provided to write the standard form equation of each circle.

- 1) Center: $(-11, -8)$
Radius: 2

$$(x + 11)^2 + (y + 8)^2 = 4$$

- 2) Center: $(10, -4)$
Radius: 5

$$(x - 10)^2 + (y + 4)^2 = 25$$

- 3) Center: $(-2, -13)$
Radius: 2

$$(x + 2)^2 + (y + 13)^2 = 4$$

- 4) Center: $(-12, 12)$
Radius: 3

$$(x + 12)^2 + (y - 12)^2 = 9$$

- 5) Center: $(0, 0)$
Radius: 2

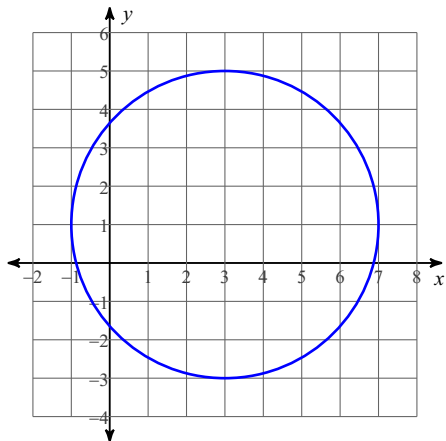
$$x^2 + y^2 = 4$$

- 6) Center: $(0, 0)$
Radius: $\sqrt{2}$

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

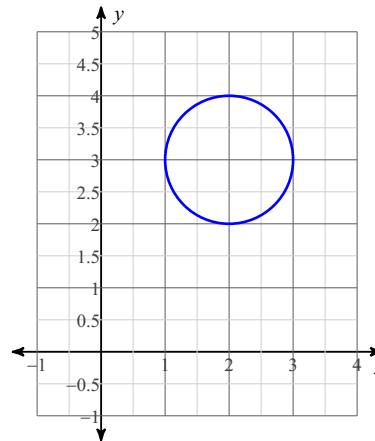
Write the equation in standard form of each circle.

7)



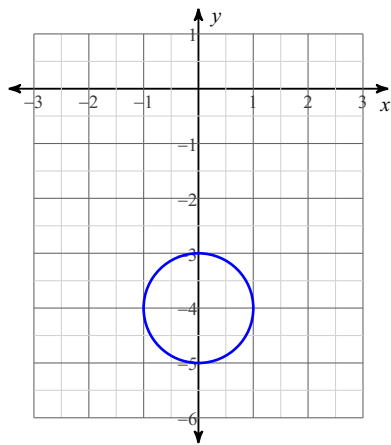
$$(x - 3)^2 + (y - 1)^2 = 16$$

8)



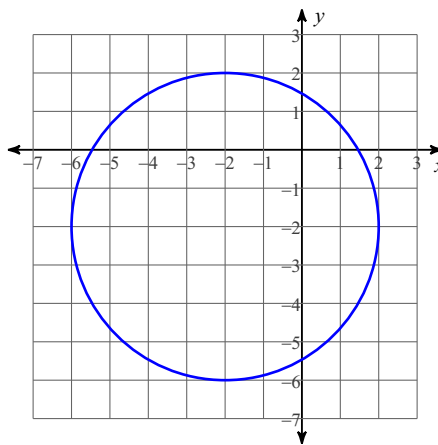
$$(x - 2)^2 + (y - 3)^2 = 1$$

9)



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

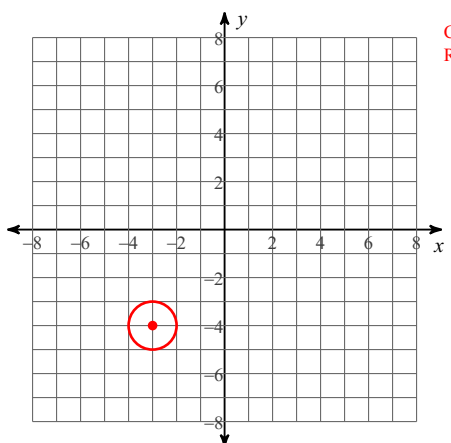
10)



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

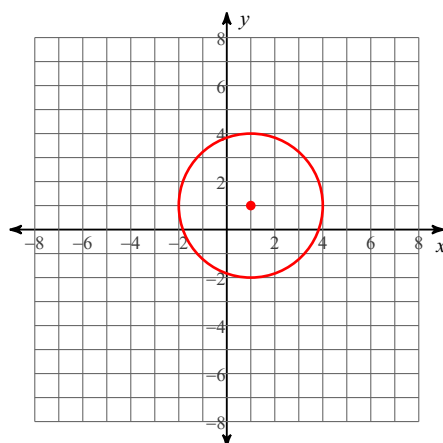
Identify the center and radius of each. Then sketch the graph.

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



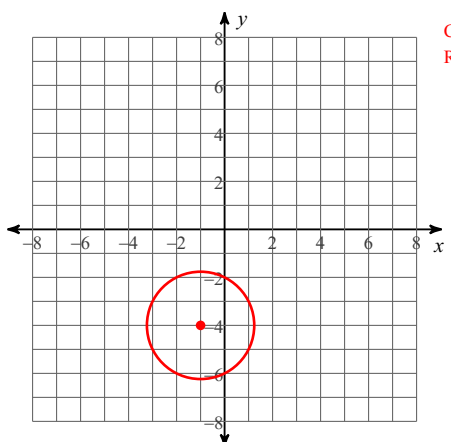
Center: $(-3, -4)$
Radius: 1

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



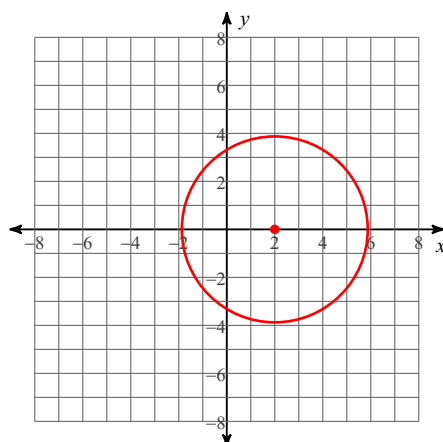
Center: $(1, 1)$
Radius: 3

13) $(x + 1)^2 + (y + 4)^2 = 5$



Center: $(-1, -4)$
Radius: $\sqrt{5}$

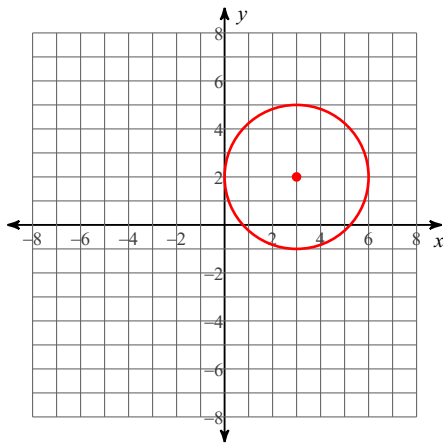
14) $(x - 2)^2 + y^2 = 15$



Center: $(2, 0)$
Radius: $\sqrt{15}$

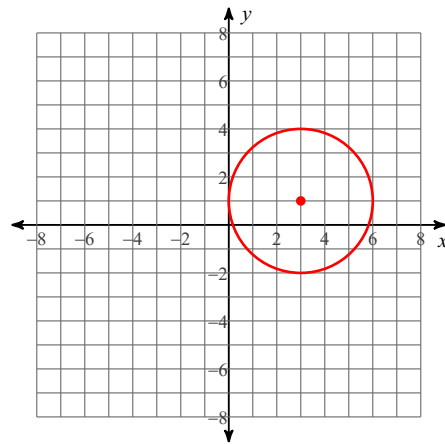
Rewrite each equation in standard form, identify the center and radius of each, and sketch the graph.

15) $-6x + x^2 - 4y + y^2 = -4$



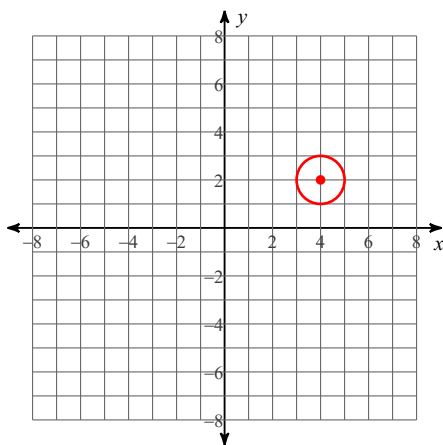
Center: (3, 2)
Radius: 3

16) $1 - 2y + y^2 = 6x - x^2$



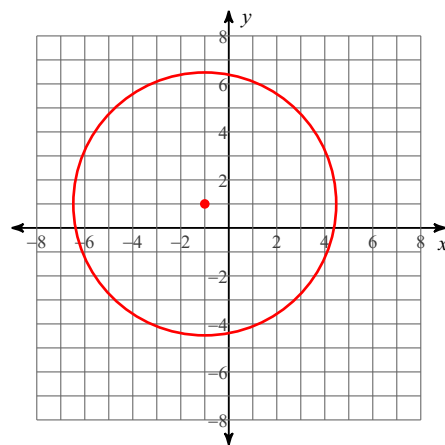
Center: (3, 1)
Radius: 3

17) $19 - 8x + x^2 = 4y - y^2$



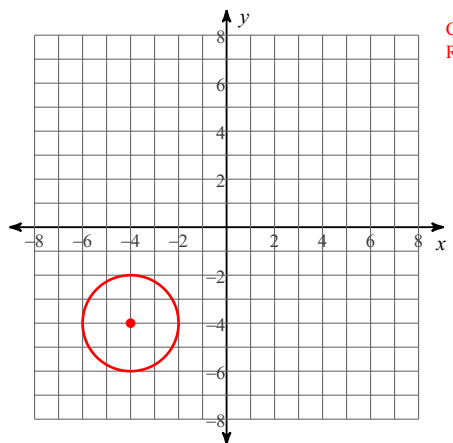
Center: (4, 2)
Radius: 1

18) $-28 + y^2 = -2x + 2y - x^2$



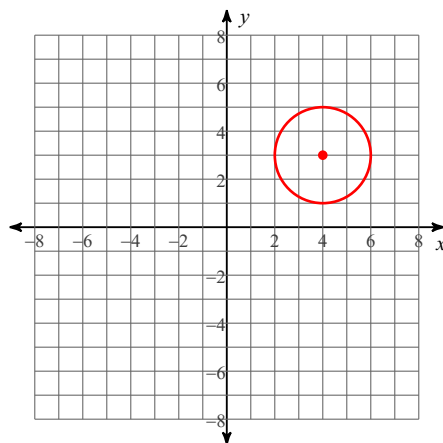
Center: (-1, 1)
Radius: $\sqrt{30}$

$$19) y^2 + 28 = -8y - 8x - x^2$$



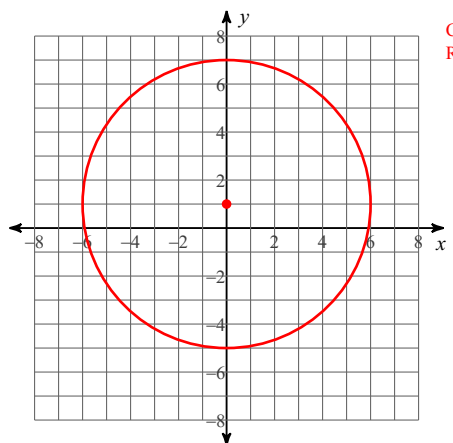
Center: $(-4, -4)$
Radius: 2

$$20) x^2 + 21 - 8x = -y^2 + 6y$$



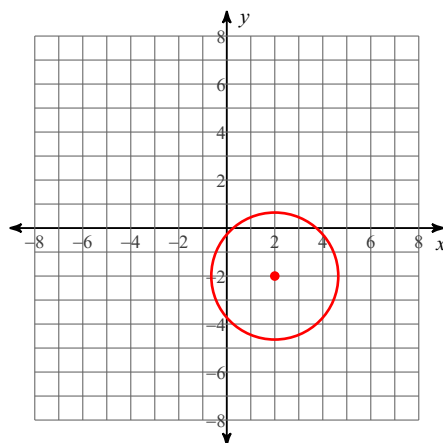
Center: $(4, 3)$
Radius: 2

$$21) y^2 - 35 + x^2 = 2y$$



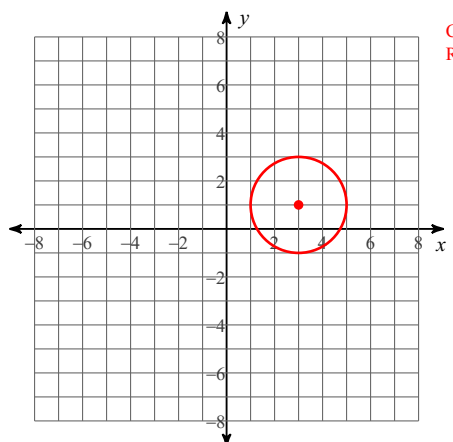
Center: $(0, 1)$
Radius: 6

$$22) y^2 - 4x = -1 - 4y - x^2$$



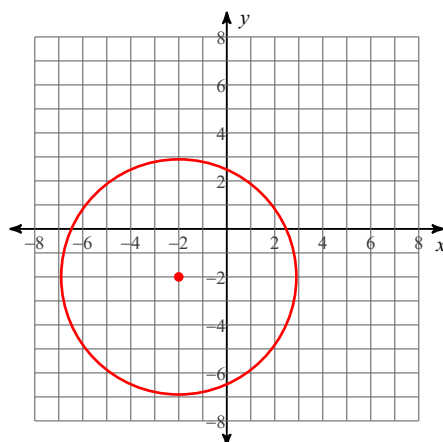
Center: $(2, -2)$
Radius: $\sqrt{7}$

$$23) x^2 + y^2 - 6x - 2y + 6 = 0$$



Center: $(3, 1)$
Radius: 2

$$24) x^2 = -y^2 - 4x - 4y + 16$$



Center: $(-2, -2)$
Radius: $2\sqrt{6}$

Use the information provided to write the standard form equation of each circle.

25) Center: $(3, -15)$
Point on Circle: $(0, -13)$

$$(x - 3)^2 + (y + 15)^2 = 13$$

26) Center: $(-9, -14)$
Point on Circle: $(-8, -16)$

$$(x + 9)^2 + (y + 14)^2 = 5$$

27) Center: $(-11, -5)$
Tangent to the y-axis

$$(x + 11)^2 + (y + 5)^2 = 121$$

28) Center: $(6, -4)$
Tangent to the x-axis

$$(x - 6)^2 + (y + 4)^2 = 16$$

29) Ends of a diameter: $(-10, -13)$ and $(4, -9)$

$$(x + 3)^2 + (y + 11)^2 = 53$$

30) Ends of a diameter: $(-8, -9)$ and $(2, 9)$

$$(x + 3)^2 + y^2 = 106$$