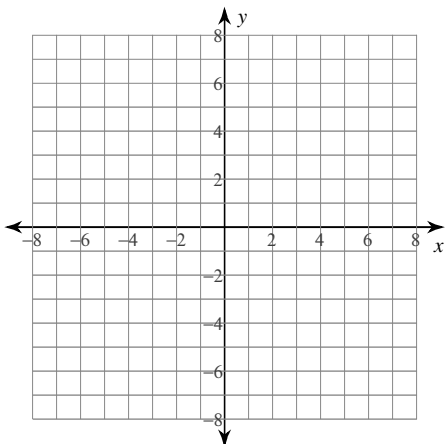


10.4 Ellipses - show work on a separate piece of paper. Graphs on the worksheet

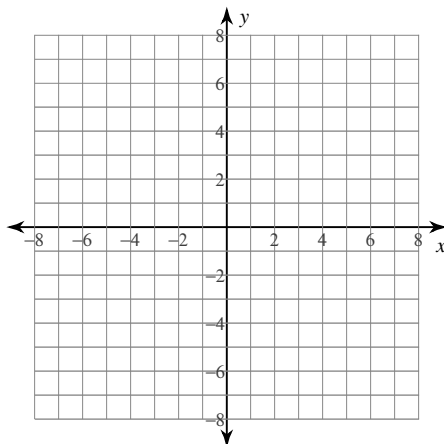
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Graph each equation.

1)
$$\frac{(x+1)^2}{25} + \frac{(y-1)^2}{16} = 1$$



2)
$$\frac{x^2}{36} + \frac{(y+2)^2}{4} = 1$$

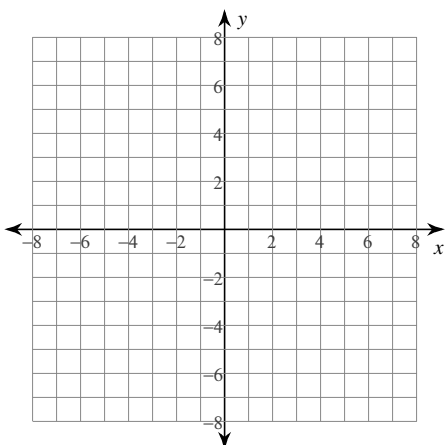
**Use the information provided to write the standard form equation of each ellipse.**

3) $x^2 + 4y^2 + 8x - 40y + 16 = 0$

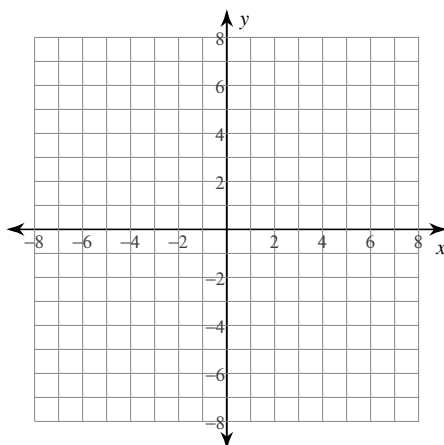
4) $9x^2 + 16y^2 - 18x + 64y - 71 = 0$

Identify the center, vertices, co-vertices, foci, length of the major axis, and length of the minor axis of each. Then sketch the graph.

5)
$$\frac{(x-3)^2}{5} + \frac{(y+1)^2}{25} = 1$$



6)
$$\frac{(x+2)^2}{25} + \frac{(y+3)^2}{9} = 1$$



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

7) Vertices: $(3, 12)$, $(3, -14)$
Foci: $(3, 4)$, $(3, -6)$

8) Vertices: $(22, 7)$, $(-4, 7)$
Foci: $(21, 7)$, $(-3, 7)$

9) Center: $(6, -10)$
Vertex: $(6, -15)$
Focus: $(6, -7)$

10) Center: $(-4, -2)$
Vertex: $(-17, -2)$
Focus: $(-16, -2)$

11) Vertices: $(5, 6)$, $(5, -8)$
Co-vertices: $(8, -1)$, $(2, -1)$

12) Vertices: $(13, -6)$, $(-11, -6)$
Co-vertices: $(1, 4)$, $(1, -16)$

Use the information provided to write the transformational form equation of each parabola.

13) $-3y^2 + x + 54y - 240 = 0$

14) Vertex: $(8, 4)$, Focus: $\left(8, \frac{15}{4}\right)$

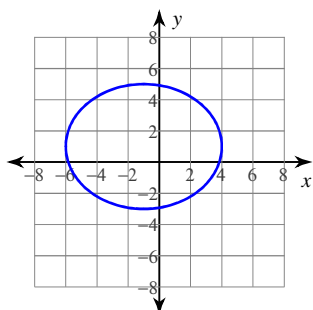
Use the information provided to write the standard form equation of each circle.

15) $x^2 + y^2 + 26x - 32y + 416 = 0$

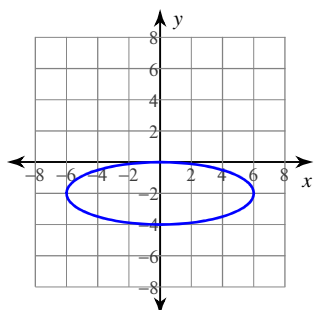
16) Three points on the circle:
 $(2, 15)$, $(1, 16)$, and $(-10, 5)$

Answers to 10.4 Ellipses - show work on a separate piece of paper. Graphs on the worksheet

1)



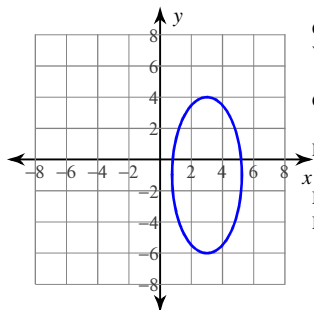
2)



$$3) \frac{(x+4)^2}{100} + \frac{(y-5)^2}{25} = 1$$

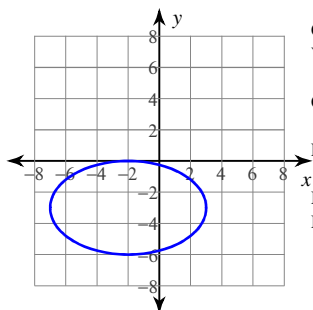
$$4) \frac{(x-1)^2}{16} + \frac{(y+2)^2}{9} = 1$$

5)



Center: (3, -1)
 Vertices: (3, 4)
 (3, -6)
 Co-vertices: $(3 + \sqrt{5}, -1)$
 $(3 - \sqrt{5}, -1)$
 Foci: $(3, -1 + 2\sqrt{5})$
 $(3, -1 - 2\sqrt{5})$
 Major Axis: 10 units
 Minor Axis: $2\sqrt{5}$ units

6)



Center: (-2, -3)
 Vertices: (3, -3)
 (-7, -3)
 Co-vertices: (-2, 0)
 (-2, -6)
 Foci: (2, -3)
 (-6, -3)
 Major Axis: 10 units
 Minor Axis: 6 units

$$7) \frac{(x-3)^2}{144} + \frac{(y+1)^2}{169} = 1$$

$$8) \frac{(x-9)^2}{169} + \frac{(y-7)^2}{25} = 1$$

$$9) \frac{(x-6)^2}{16} + \frac{(y+10)^2}{25} = 1$$

$$10) \frac{(x+4)^2}{169} + \frac{(y+2)^2}{25} = 1$$

$$11) \frac{(x-5)^2}{9} + \frac{(y+1)^2}{49} = 1$$

$$12) \frac{(x-1)^2}{144} + \frac{(y+6)^2}{100} = 1$$

$$13) \frac{1}{3}(x+3) = (y-9)^2$$

$$14) -(y-4) = (x-8)^2$$

$$15) (x+13)^2 + (y-16)^2 = 9$$

$$16) (x+4)^2 + (y-10)^2 = 61$$