1.   Graph the equation. Find the lines of symmetry, the domain, and the range.

$$x^2 + 36y^2 = 324$$

Choose the correct graph. Circle your choice.

   ○ A.   (○ B.)   ○ C.   ○ D.

What are the lines of symmetry of the conic section? Circle your choice.

   (A.) The x-axis and the y-axis

    B. Any line that passes through the center of the conic section

    C. Any line that passes through two points of the conic section

    D. The line $y = x$ and the line $y = -x$

The domain is ___$\mathbb{R}$ $-18 \leq x \leq 18$___.

The range is ___$\mathbb{R}$ $-3 \leq y \leq 3$___.

2.   Graph the equation. Identify the conic section and describe the graph and its lines of symmetry. The find the domain and range. $x^2 + y^2 = 49$

Choose the correct graph. Circle your choice.

   (○ A.)   ○ B.   ○ C.   ○ D.

Describe the graph. If it is a circle, state the radius.

The graph is a(n) __*circle*, r = 7__. The center is at __(0,0)__.

Describe all of the lines of symmetry of the conic section. Circle your answer.

    A. The line $y = x$ and the line $y = -x$

    B. Every line that passes through at least two points of the conic section

    C. Every line that passes through the center of the conic section
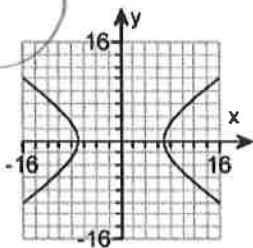
    D. The x-axis and the y-axis

The domain is __$\mathbb{R}$__ $-7 \le x \le 7$ __.

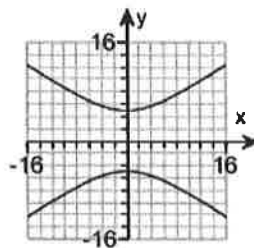The range is __$\mathbb{R}$__ $-7 \le y \le 7$ __.

3. Graph the equation. Identify the conic section and describe the graph and its lines of symmetry. Then find the domain and range. $x^2 - 2y^2 = 49$

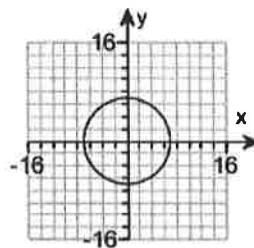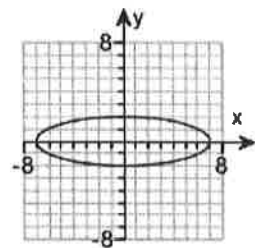Choose the correct graph. Circle your choice.

    ○ A.   ○ B.   ○ C.   ○ D.

Describe the graph. If it is a circle, state the radius.

The graph is a(n) __hyperbola__. The center is at __(0,0)__.

Describe all of the lines of symmetry of the conic section. Circle your answer.

A. Every line that passes through at least two points of the conic section

B. The x-axis and the y-axis

C. Every line that passes through the center of the conic section

D. The line y = x and the line y = -x

The domain is $\mathbb{R}$ $x \leq -7$ or $x \geq 7$.

The range is $\mathbb{R}$.

4. Write an equation of a parabola with vertex at the origin and the focus at (10, 0).

$$x = \frac{1}{40}y^2$$

5. Write an equation of a parabola with vertex at the origin and a directrix of y = 1.2.
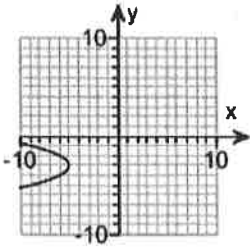
$$y = \frac{-5}{24}x^2$$

6. Identify the vertex, the focus, and the directrix of the parabola with the given equation. Then sketch the graph.
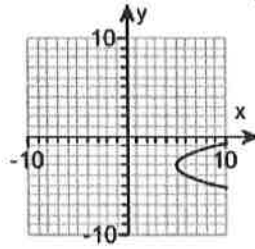
$$y = x^2 + 6x + 14$$

The vertex is $(-3, 5)$. The focus is $(-3, 5.25)$ The directrix is y = 4.75 .
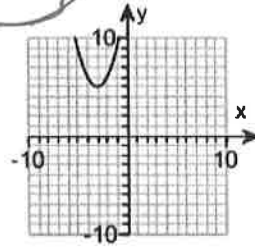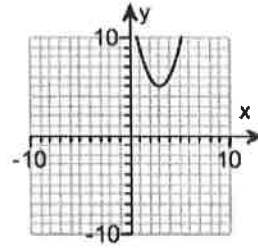
Choose the correct graph. Circle your choice.

○ A.   ○ B.   ⊙ C.   ○ D.

7.   Write an equation of a parabola with a vertex of (-4, -3) and focus (-4, -2).

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

8.   Write an equation of a circle with a center (-1, -7) and radius of 5.

$$(x+1)^2 + (y+7)^2 = 25$$

9.   Determine the center and radius of the circle described by the equation.

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

Center ___(-2, 4)___   Radius ___6___

10. Graph the circle. $(x - 5)^2 + (y + 2)^2 = 25$

$(5, -2)$ $r = 5$