Chapter 8 Review

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the vertex, focus, directrix, and focal width of the parabola.

1) $(y - 3)^2 = 4(x - 7)$ 1) _____

A) Vertex: (7, 3); Focus: (11, 3); Directrix: x = 3; Focal width: 4
B) Vertex: (3, 7); Focus: (3, 11; Directrix: y = 3; Focal width: 4
C) Vertex: (3, 7); Focus: (3, 8); Directrix: y = 6; Focal width: 1
D) Vertex: (7, 3); Focus: (8, 3); Directrix: x = 6; Focal width: 4

Find the standard form of the equation of the parabola.

2) Focus at (10, -4), directrix y = -6 2) _____

A) $(y + 4)^2 = 4(x - 10)$
B) $(x - 10)^2 = 4(y + 4)$
C) $(x - 10)^2 = 4(y + 5)$
D) $(x + 4)^2 = 4(y + 5)$

Find the vertex, the focus, and the directrix of the parabola.

3) $x^2 + 10x + 8y + 17 = 0$ 3) _____

A) Vertex: $(-5, 1)$; Focus: (-5, -1); Directrix: y = 3
B) Vertex: $\left(-5, \frac{7}{8}\right)$; Focus: (-5, -7); Directrix: $y = \frac{9}{8}$
C) Vertex: $(-5, -6)$; Focus: (-5, -7); Directrix: y = -9
D) Vertex: $(-5, -1)$; Focus: (-5, 3); Directrix: y = -1

Find an equation in standard form for the ellipse that satisfies the given conditions.

4) An ellipse with foci at (1, -1) and (7, -1); major axis length of 10 4) _____

A) $\frac{(y + 1)^2}{25} + \frac{(x - 4)^2}{16} = 1$
B) $\frac{(x - 1)^2}{25} + \frac{(x + 4)^2}{16} = 1$
C) $\frac{(x - 4)^2}{25} + \frac{(y + 1)^2}{16} = 1$
D) $\frac{(x + 1)^2}{25} + \frac{(y + 4)^2}{16} = 1$

Find the center, vertices, and foci of the ellipse with the given equation.

5) $7x^2 + 3y^2 = 21$ 5) _____

A) Center: (0, 0); Vertices: $(-7, 0), (7, 0)$; Foci: $(-2\sqrt{10}, 0), (2\sqrt{10}, 0)$
B) Center: (0, 0); Vertices: $(0, -7), (0, 7)$; Foci: $(0, -2\sqrt{10}), (0, 2\sqrt{10})$
C) Center: (0, 0); Vertices: $(-\sqrt{7}, 0), (-\sqrt{7}, 0)$; Foci: $(-2, 0), (2, 0)$
D) Center: (0, 0); Vertices: $(0, -\sqrt{7}), (0, \sqrt{7})$; Foci: $(0, -2), (0, 2)$

Find the vertices and foci of the hyperbola.

6) $\frac{(y + 1)^2}{36} - \frac{(x + 2)^2}{64} = 1$ 6) _____

A) Vertices: (5, -2), (-7, -2); Foci: (9, -2), (-11, -2)
B) Vertices: (7, -2), (-9, -2); Foci: (-9, -2), (7, -2)
C) Vertices: (-2, 7), (-2, -9); Foci: (-2, -9), (-2, 7)
D) Vertices: (-2, 5), (-2, -7); Foci: (-2, 9), (-2, -11)