Name _____ Date _____ Period _____

<u>DIRECTIONS</u>: For #1-2, respond in the provided blanks.

**1.** A parabola has its focus at $(8, -7)$ and directrix of $y = 1$. Identify the **vertex** of this parabola.

**2.** A parabola has its vertex at $(5, 3)$ and focus at $(1, 3)$. Identify the **directrix** of this parabola.

_____                                        _____

<u>DIRECTIONS</u>: For #3-4, **write equations** for the described parabolas in the provided blanks.

**3.** Focus $(-1, 7)$ ; Vertex $(-1, 3)$

**4.** Focus $(4, -4)$; Directrix $y = -6$

_____                        _____

<u>DIRECTIONS</u>: For #5-6, **rewrite the equations** in the standard form for parabolas. Then identify the **vertex**, **focus**, **directrix**, and **axis of symmetry** for the parabola.

**5.** $x^2 - 8x + 2y + 16 = 0$

**6.** $y^2 + 8x + 2y - 15 = 0$

Equation:                                                Equation:

_____                        _____

Vertex:    _____                            Vertex:    _____

Focus:     _____                            Focus:     _____

Directrix: _____                            Directrix: _____

Axis:       _____                            Axis:       _____

DIRECTIONS: For #7, **write an equation** for an ellipse with the given intercepts.

   **7.** *x*-intercepts: $\pm 9$ ; y-intercepts: $\pm 2$     _____

DIRECTIONS: For #8-9, **write equations** for ellipses with the given foci and sum of focal radii.

   **8.** Foci: $(-1, 3), (3, 3)$ ;
       Sum of focal radii $= 10$

   **9.** Foci: $(-6, 0), (6, 0)$ ;
       Sum of focal radii $= 14$

   _____         _____

DIRECTIONS: For #10-11, **rewrite the equations** in the standard form for ellipses.   Then identify the **center**, direction of the **major axis** (horizontal or vertical), **verticies**, **co-verticies**, and **foci**.

   **10.** $x^2 + 9y^2 - 36y + 27 = 0$

   **11.** $9x^2 + 4y^2 - 36x + 8y + 4 = 0$

   Equation:                            Equation:

   _____      _____

   Center:        _____          Center:        _____

   Major axis:    _____     Major axis:    _____

   Verticies:     _____      Verticies:     _____

   Co-verticies:   _____      Co-verticies:   _____

   Foci:           _____      Foci:           _____