Name: Date: Period:

**Read each problem carefully. In order to receive full credit, you must show ALL work.**

1. Find the distance between the two points. Then, find the midpoint of the line segment connecting the two points. (8, -5) (3, 4)

**Graph each equation.**

1. $y^{2}= 8x$ 3. $3x^{2}+ 3y^{2}=27$

Focus: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Center: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Directrix: \_\_\_\_\_\_\_\_\_\_\_\_ Radius: \_\_\_\_\_\_\_\_\_\_\_\_\_\_



 4. $x^{2}+ y^{2}-10x+6y=-18$

 Center: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Radius: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 5. $16x^{2}+ 4y^{2}=64$ 6. $\frac{(x+1)}{4}^{2}+ \frac{(y-2)}{36}^{2}=1$

 Vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Co-vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Co-vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Foci: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Foci: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



7. $\frac{x^{2}}{25}- \frac{y^{2}}{36}=1$ 8. $\frac{(y+1)}{16}^{2}- \frac{(x-3)}{16}^{2}=1$

 Vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Vertices: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Foci: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Foci: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Write an equation for each conic section.**

9. Parabola with a vertex at (0, 0) and a focus and (0, 2). 10. Circle with a center at (5, -7) and radius 4.

11. Ellipse with a center at (2, 4), vertex at (-4, 4) 12. Hyperbola with covertices at (-6, -2) and (-2, -2) and co-vertex at (2, 1). and vertices at (-4, 1) and (-4, -5).

**Classify the conic section and write its equation in standard form.**

13. $3x^{2}+ 3y^{2}=75$ 14. $4x^{2}+ 16y^{2}=64$

15. $4y^{2}- 36x^{2}- 144=0$ 16.4$x^{2}$ – 16*x* – *y* + 21 = 0

**17.** $y^{2}$ – 6*y* – 4$x^{2}$ – 8*x* = 95

18. Solve the following system by graphing. 19. Solve the system of inequalities by graphing.

****$y^{2}$ = 9 – $x^{2}$ $\frac{x^{2}}{16}$+ $\frac{y^{2}}{4}$ < 1

 *y* = – $\frac{3}{4}$ *x* + 4

 *x* ≥ 4$(y+2)^{2}$

20. Find the exact solution(s) of the system of equations algebraically.

$x^{2}$ – 2*y* = 11

 3$x^{2}$ + $y^{2}$ = 24