Name_ Period

- 1. Find the focus of the parabola: $y^2 = -8x$
- 2. Identify the focus and directrix of the parabola given by $y^2 = -4x$.
- 3. Identify the focus and directrix of the parabola given by $x^2 = 12y$.
- 4. Graph the parabola. $y^2 8x = 0$ Include the vertex, focus, directrix, and four points other than the vertex.



- 5. Write the standard form of the equation of the parabola with its vertex at (0, 0) and focus at (0, -4)
- 6. Write the standard form of the equation of the parabola with its vertex at (0, 0) and directrix y = 5.
- 7. Write the standard form of the equation of the parabola with its vertex at (0, 0) and directrix x = 2.
- 8. Suppose a parabola has vertex (0, 0) and the distance from the vertex to the focus is 5 units. How many possible parabolas fit this description? Write the equations of all the possible parabolas that fit this description.

9. Sketch the graph of $x^2 + y^2 = 49$. Give the center and 4 points on the circle.



10. Write the standard form of the equation of the circle with radius 6 and center at (0, 0)

11. Sketch the graph of $2x^2 + 2y^2 = 32$. Give the center and 4 points on the circle.



- 12. Write the standard form of the equation of the circle that passes through the point (0, 1) with its center at the origin.
- 13. Write the standard form of the equation of the circle that passes through the point (3, 4) with its center at the origin.
- 14. Write the standard form of the equation of the circle that passes through the point (1, -6) with its center at the origin.

15. Determine the foci, vertices, and covertices of the graph of $\frac{x^2}{9} + \frac{y^2}{16} = 1$

16. Sketch the graph of $\frac{x^2}{25} + \frac{y^2}{9} = 1$. Include the vertices, covertices, and foci.



17. Sketch the graph of $\frac{x^2}{4} + \frac{y^2}{9} = 1$. Include the vertices, covertices, and foci.



18. Sketch the graph of $16x^2 + y^2 = 16$. Include the vertices, covertices, and foci.



19. Write an equation of an ellipse with vertices of (-7, 0) and (7, 0), and co-vertices (0, -4) and (0, 4).

20. Write an equation of the ellipse with a vertex at (9, 0), a co-vertex at (0, 5), and center at (0, 0).

21. Write an equation of the ellipse with a vertex at (0, 8), a co-vertex at (4, 0), and center at (0, 0).

22. Write an equation of the ellipse with a vertex at (5, 0), a focus at (4, 0), and center at (0, 0).

23. Writing: How is the equation of an ellipse like the equation of a circle? How are the equations different?