Name: _____

Algebra 2 Unit 10 Study Guide
Conics

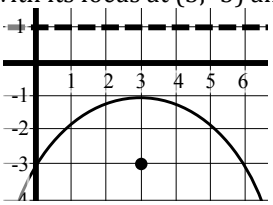
Simplify.

1. -24 + -33
2. 27 – -16
3. (31)(7)
4. 48 ÷ -12

Evaluate.

5. Solve the system of equations. $\begin{cases} 7x + 3y = 24 \\ 5x + y = 16 \end{cases}$
6. Factor. $2x^2 + 4x - 16$
7. Determine the zeros. $f(x) = -x^2 - 6x + 16$
8. Find the *x*-intercepts of the function. $f(x) = x^2 - 3x + 7$
9. Simplify. i^{449}
10. Simplify. $\dfrac{x^2 + 5x + 4}{x^2 - 7x - 44}$
11. Simplify. $32^{\frac{3}{5}}$
12. The number of hats and headbands varies inversely. If there can be 4 hats and 6 headbands, how many hats would there need to be to have 1 headband?
13. Divide. $\dfrac{x^2 + 2x + 1}{x^2 - 9} \div \dfrac{x + 1}{x - 3}$

14. Determine the equation of the parabola with its focus at (3, -3) and its directrix at $y = 1$.



15. Write the equation of the conic in standard form. $4(x + 3)^2 - 3y^2 = 36$
16. Identify the type of conic section. $-7x^2 - 2y^2 - 9x + y - 16 = 0$
17. Write the equation in standard form for an ellipse with center (5, 4), vertex (8, 4) and focus (6, 4).
18. Write the equation of the circle with a radius of 6 and a center at (-1, 0).

For problems 19-21, use the conic given below.

$$y + 4 = \frac{7}{2}(x - 8)^2$$

19. Identify the type of conic section.
20. Identify (h, k).
21. Identify *p*.

For problems 22-25, use the conic given below.

$$\frac{(y + 2)^2}{25} - \frac{x^2}{100} = 1$$

22. Identify the type of conic section.
23. Identify *a*.
24. Identify *b*.
25. Identify *c*.