6.3 Practice Set

1. Describe the general technique for graphing a hyperbola.
2. How are the hyperbola and the ellipse equations similar?
3. How can you recognize a conic by its equation?

Graph each of the following relations. Give the x-intercept(s), y-intercept(s), domain, and range.

4. $\frac{x^2}{9} - \frac{y^2}{25} = 1$
5. $\frac{y^2}{4} - \frac{x^2}{16} = 1$
6. $x^2 - 4y^2 = 36$
7. $2y^2 - 8x^2 = 72$
8. $(x+1)^2 - (y-3)^2 = 25$
9. $\frac{(x-2)^2}{9} - \frac{(y-4)^2}{36} = 1$
10. $\frac{(x-5)^2}{13} - \frac{(y+1)^2}{8} = 1$

Identify each of the following as a parabola, circle, ellipse or hyperbola.

11. $y = 4x^2 + 4x - 8$
12. $x - y^2 = 12y$
13. $\frac{(x-4)^2}{9} + \frac{(y-1)^2}{16} = 1$
14. $\frac{(x-3)^2}{4} - \frac{(y-2)^2}{81} = 1$

15. $\frac{(x-6)^2}{7} + \frac{(y+8)^2}{7} = 1$

16. $4y^2 - 4x^2 = 8$

17. $x^2 + y^2 - 12x + 2y = -1$

18. $2x^2 + 2y^2 + 8y = 10$

19. $x + \frac{y^2}{25} = 1$

20. $y - 6x^2 = 4x + 1$

Distributed Practice Problems

Graph each of the following functions. Give the x-intercept(s), y-intercept, domain, range, and the equation(s) of any asymptote(s).

21. $y = -\frac{4}{5}x + 2$

22. $y = 2x^2 - 6x - 8$

23. $y = \sqrt{x} - 1$

24. $y = -|x + 3| + 4$

25. $x = -(y - 2)^2$

26. $y = \frac{1}{x-4} + 5$

27. $y = 3^{x-4}$

28. $y = \log_4(x + 1) - 2$

29. $\frac{(x-3)^2}{16} + \frac{(y+4)^2}{25} = 1$

30. $(x + 2)^2 + y^2 = 9$