

6.2 Practice Set

1. What is a conic section?
2. Describe the general technique for graphing an ellipse.
3. How are the circle and the ellipse related?
4. How do the equations representing circles or ellipses differ from the equations representing parabolas?

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

5. $x^2 + y^2 = 16$

6. $x^2 + (y - 2)^2 = 9$

7. $(x + 2)^2 + (y - 3)^2 = 1$

8. $(x - 1)^2 + (y + 3)^2 = 25$

9. $x^2 + y^2 + 4y = 0$

10. $x^2 + 2x + y^2 - 6y = 6$

11. $x^2 + y^2 - 8x - 2y = 8$

12. $3x^2 + 3y^2 = 12$

13. $\frac{x^2}{16} + \frac{y^2}{25} = 1$

14. $\frac{x^2}{4} + y^2 = 1$

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

16. $\frac{(x+2)^2}{36} + \frac{(y-5)^2}{9} = 1$

- 17. $x^2 + 9y^2 = 81$
- 18. $4(x + 3)^2 + 25(y - 2)^2 = 100$
- 19. $2(x - 2)^2 + 2y^2 = 2$
- 20. $\frac{y^2}{25} = 1 - x^2$
- 21. $12x^2 + 3y^2 = 48$
- 22. $16x^2 + 9(y + 2)^2 = 144$

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).

- 23. $-4x + 3y = 9$
- 24. $y = 3x^2 - 6x + 12$
- 25. $y = -\sqrt{x + 1} - 4$
- 26. $y = |x + 3|$
- 27. $x = (y - 2)^2 - 5$
- 28. $y = \frac{1}{x-4}$
- 29. $y = 4^{x-2} + 1$
- 30. $y = -\log_3(x - 7) + 2$