

Solve the equation. Check your solution(s).

1.  $5x + 24 = 11 - 2x$  (p. 18)

2.  $|4x - 7| = 13$  (p. 51)

3.  $x^2 - 12x + 35 = 0$  (p. 252)

4.  $2x^2 - 5x + 5 = 0$  (p. 292)

5.  $x^3 + 3x^2 - 18x = 40$  (p. 370)

6.  $\sqrt{x-2} = x-4$  (p. 452)

7.  $4^x - 5 = 3$  (p. 515)

8.  $\frac{x+3}{3x+1} = \frac{x}{x+2}$  (p. 589)

9.  $\frac{x-4}{x-3} + 2 = \frac{2x-3}{x-3}$  (p. 589)

Graph the equation.

10.  $y = -2x + 7$  (p. 89)

11.  $y = (x+1)^2(x-2)$  (p. 387)

12.  $y = \sqrt{x+4} + 3$  (p. 446)

13.  $y = 4e^x$  (p. 492)

14.  $y = \ln(x-2)$  (p. 499)

15.  $y = \frac{3x-1}{x^2-9}$  (p. 565)

Factor the expression.

16.  $2x^2 - 20x - 48$  (p. 259)

17.  $6x^2 + 7x - 20$  (p. 259)

18.  $x^3 + 8x^2 - 4x - 32$  (p. 353)

Find the inverse of the function. (p. 438)

19.  $f(x) = 6x - 1$

20.  $f(x) = x^3 - 5$

21.  $f(x) = x^5$

Tell whether the function is an example of *exponential growth* or *exponential decay*. (pp. 486, 492)

22.  $f(x) = 5(1.4^x)$

23.  $f(x) = 3(0.6)^x$

24.  $f(x) = 8e^{-2x}$

Condense the expression. (p. 507)

25.  $3 \ln x - \ln 5$

26.  $\log_3 4 + 2 \log_3 7$

27.  $5 \log x + \log y - 3 \log z$

The variables  $x$  and  $y$  vary inversely. Use the given values to write an equation relating  $x$  and  $y$ . (p. 551)

28.  $x = 18, y = 6$

29.  $x = 5, y = -15$

30.  $x = 6, y = 9$

Perform the indicated operation and simplify.

31.  $\frac{x-5}{x+7} \cdot \frac{3x+21}{x^2-25}$  (p. 573)

32.  $\frac{2x+8}{x-3} \div \frac{x+4}{x^2-x-6}$  (p. 573)

33.  $\frac{x-3}{x+5} + \frac{7}{x-2}$  (p. 582)

Find the distance between the two points. Then find the midpoint of the line segment joining the two points. (p. 614)

34.  $(-8, 5), (-4, -1)$

35.  $(3, 5), (8, 7)$

36.  $(-2, 7), (1, 14)$

Classify the conic section and write its equation in standard form. Then graph the equation. (p. 650)

37.  $x^2 + y^2 + 12x - 4y + 15 = 0$

38.  $4x^2 - 16y^2 - 56x + 160y - 268 = 0$

39.  $y^2 + 6x + 4y + 16 = 0$

40.  $2x^2 + 3y^2 + 4x + 12y - 14 = 0$

41. **FENCING** You have 380 feet of fencing to enclose a rectangular garden. You want the length of the garden to be 40 feet greater than the width. Find the length and width of the garden if you use all of the fencing. (p. 34)