



1.6 Other Types of Equations

Polynomial Equations

In Exercises 1–24, find all solutions of the equation. Check your solutions in the original equation.

2. $20x^3 - 125x = 0$

16. $36t^4 + 29t^2 - 7 = 0$

Graphical Analysis In Exercises 25–28, (a) use a graphing utility to graph the equation; (b) use the graph to approximate any x -intercepts of the graph; (c) set $y = 0$ and solve the resulting equation; and (d) compare the result of part (c) with the x -intercepts of the graph.

26. $y = 2x^4 - 15x^3 + 18x^2$

In Exercises 29–52, find all solutions of the equation. Check your solutions in the original equation.

32. $\sqrt{5 - x} - 3 = 0$

$$38. \sqrt{x+5} = \sqrt{x-5}$$

48. $(x + 2)^{2/3} = 9$

44. $4\sqrt{x-3} - \sqrt{6x-17} = 3$

In Exercises 57–70, find all solutions of the equation. Check your solutions in the original equation.

$$60. \frac{4}{x+1} - \frac{3}{x+2} = 1$$

70. $|x - 10| = x^2 - 10x$

Graphical Analysis In Exercises 71–74, (a) use a graphing utility to graph the equation; (b) use the graph to approximate any x -intercepts of the graph; (c) set $y = 0$ and solve the resulting equation; and (d) compare the result of part (c) with the x -intercepts of the graph.

74. $y = |x - 2| - 3$

In Exercises 75–78, find the real solutions of the equation analytically. (Round your answers to three decimal places.)

$$76. 7.08x^6 + 4.15x^3 - 9.6 = 0$$

Think About It In Exercises 79–86, find an equation that has the given solutions. (There are many correct answers.)

80. 0, 3, 5

- 90. Average Speed** A family drove 1080 miles to their vacation lodge. Because of increased traffic density, their average speed on the return trip was decreased by 6 miles per hour and the trip took $2\frac{1}{2}$ hours longer. Determine their average speed on the way to the lodge.

