

In Exercises 95–108, find all solutions of the equation. Check your solutions in the original equation.

95.  $\sqrt{x-10} - 4 = 0$       96.  $\sqrt{5-x} - 3 = 0$   
 97.  $\sqrt[3]{2x+5} + 3 = 0$       98.  $\sqrt[3]{3x+1} - 5 = 0$   
 99.  $x = \sqrt{11x-30}$       100.  $2x - \sqrt{15-4x} = 0$   
 101.  $\sqrt{x+1} - 3x = 1$       102.  $\sqrt{x+5} = \sqrt{x-5}$   
 103.  $\sqrt{x} - \sqrt{x-5} = 1$       104.  $\sqrt{x} + \sqrt{x-20} = 10$   
 105.  $2\sqrt{x+1} - \sqrt{2x+3} = 1$   
 106.  $3\sqrt{x} - \frac{4}{\sqrt{x}} = 4$   
 107.  $(x-5)^{2/3} = 16$   
 108.  $(x+3)^{3/4} = 27$

109. **Market Research** The demand equation for a certain product is modeled by  $p = 40 - \sqrt{0.01x + 1}$ , where  $x$  is the number of units demanded per day and  $p$  is the price per unit. Approximate the demand if the price is \$37.55.

110. **Market Research** The demand equation for a certain product is modeled by  $p = 40 - \sqrt{0.0001x + 1}$ , where  $x$  is the number of units demanded per day and  $p$  is the price per unit. Approximate the demand if the price is \$34.70.

In Exercises 111 and 112, solve for the indicated variable.

111. **Surface Area of a Cone**

Solve for  $h$ :  $S = \pi r \sqrt{r^2 + h^2}$

112. **Inductance**

Solve for  $Q$ :  $i = \pm \sqrt{\frac{1}{LC}} \sqrt{Q^2 - q}$

In Exercises 113 and 114, consider an equation of the form  $x + \sqrt{x-a} = b$ , where  $a$  and  $b$  are constants.

113. **Exploration** Find  $a$  and  $b$  if the solution to the equation is  $x = 20$ . (There are many correct answers.)

114. **Essay** Write a short paragraph listing the steps required in solving an equation involving radicals.

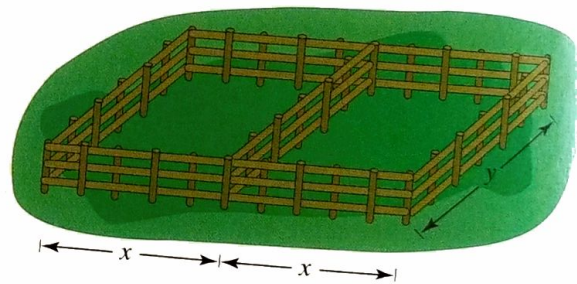
In Exercises 115–120, find all solutions of the equation. Check your solutions in the original equation.

115.  $|x+1| = 2$       116.  $|x-2| = 3$   
 117.  $|2x-1| = 5$       118.  $|3x+2| = 7$   
 119.  $|x^2+6x| = 3x+18$       120.  $|x-10| = x^2-10x$

**Think About It** In Exercises 121 and 122, find an equation having the given solutions. (There are many correct answers.)

121.  $-3, 5$       122.  $0, 2, \frac{5}{2}$

123. **Dimensions of a Corral** A rancher has 100 meters of fencing to enclose two adjacent rectangular corrals (see figure). Find the dimensions such that the enclosed area will be 350 square meters.



$$4x + 3y = 100$$

124. **Dimensions of a Box** An open box is to be made from a square piece of material by cutting 2-centimeter squares from the corners and turning up the sides (see figure). The volume of the finished box is to be 200 cubic centimeters. Find the size of the original piece of material.

