

13. Solve by factoring.

$$4x^2 + 24x - 28 = 0$$

$$x^2 + 6x - 7 = 0$$

$$(x + 7)(x - 1) = 0$$

$$x = -7, x = 1$$

14. A manufacturer determines that the number of drills it can sell is given by the formula

$$D = -4p^2 + 168p - 330, \text{ where } p \text{ is the price of the drills in dollars.}$$

- a. At what price will the manufacturer sell the maximum number of drills?
 b. What is the maximum number of drills that can be sold?

a) $\frac{-b}{2a} = \frac{-168}{2(-4)} = 21$ (21) b) $D = -4(21)^2 + 168(21) - 330$
 $= 1434 \text{ drills}$

15. A food store makes a 9-lb mixture of peanuts, cashews, and raisins. Peanuts cost \$1.50 per pound, cashews cost \$1.00 per pound, and raisins cost \$1.50 per pound. The mixture calls for twice as much peanuts than cashews. The total cost of the mixture is \$12.50. How much of each ingredient did the store use?

$$P + C + R = 9$$

$$1.5P + C + 1.5R = 12.5$$

$$P = 2C$$

$$2C + C + R = 9$$

$$1.5(2C) + C + 1.5R = 12.5$$

$$3C + R = 9$$

$$4C + 1.5R = 12.5$$

$$-4.5C - 1.5R = -13.5$$

$$-0.5C = -1$$

$$C = 2 \text{ lb}$$

$$P = 2(2) = 4 \text{ lb}$$

$$R = 3 \text{ lb}$$