Example 5

35 SPORTS A 200-pound athlete who trains for four hours per day requires 2836 Calories for basic energy requirements. During training, the same athlete requires an additional 3091 Calories for extra energy requirements. Write an equation to find C, the total daily Calorie requirement for this athlete. Then solve the equation.

36. ENERGY An electric generator can power 3550 watts of electricity. Write and solve an equation to find how many 75-watt light bulbs a generator could power.

Make a table of values for each equation if the replacement set is $\{-2, -1, 0, 1, 2\}$.

37. $y = 3x - 2$ 　　　　　　　　　　　　 **38.** $3.25x + 0.75 = y$

Solve each equation using the given replacement set.

39. $t - 13 = 7; \{10, 13, 17, 20\}$ 　　　　 **40.** $14(x + 5) = 126; \{3, 4, 5, 6, 7\}$

41. $22 = \frac{n}{3}; \{62, 64, 66, 68, 70\}$ 　　　　 **42.** $35 = \frac{g - 8}{2}; \{78, 79, 80, 81\}$

Solve each equation.

43. $\frac{3(9) - 2}{1 + 4} = d$ 　　　　　　　　 **44.** $j = 15 \div 3 \cdot 5 - 4^2$

45. $c + (3^2 - 3) = 21$ 　　　　　　　 **46.** $(3^3 - 3 \cdot 9) + (7 - 2^2)b = 24b$

47. CCSS SENSE-MAKING Blood flow rate can be expressed as $F = \frac{p_1 - p_2}{r}$, where F is the flow rate, p_1 and p_2 are the initial and final pressure exerted against the blood vessel's walls, respectively, and r is the resistance created by the size of the vessel.

   a. Write and solve an equation to determine the resistance of the blood vessel for an initial pressure of 100 millimeters of mercury, a final pressure of 0 millimeters of mercury, and a flow rate of 5 liters per minute.

   b. Use the equation to complete the table below.

Initial Pressure p_1 (mm Hg)	Final Pressure p_2 (mm Hg)	Resistance r (mm Hg/L/min)	Blood Flow Rate F (L/min)
100	0		5
100	0	30	
	5	40	4
90		10	6

Determine whether the given number is a solution of the equation.

48. $x + 6 = 15; 9$ 　　　 **49.** $12 + y = 26; 14$ 　　　 **50.** $2t - 10 = 4; 3$

51. $3r + 7 = -5; 2$ 　　　 **52.** $6 + 4m = 18; 3$ 　　　 **53.** $-5 + 2p = -11; -3$

54. $\frac{q}{2} = 20; 10$ 　　　 **55.** $\frac{w - 4}{5} = -3; -11$ 　　　 **56.** $\frac{g}{3} - 4 = 12; 48$

Make a table of values for each equation if the replacement set is $\{-2, -1, 0, 1, 2\}$.

57. $y = 3x + 5$ 　　 **58.** $-2x - 3 = y$ 　　 **59.** $y = \frac{1}{2}x + 2$ 　　 **60.** $4.2x - 1.6 = y$

61. GEOMETRY The length of a rectangle is 2 inches greater than the width. The length of the base of an isosceles triangle is 12 inches, and the lengths of the other two sides are 1 inch greater than the width of the rectangle.

   a. Draw a picture of each figure and label the dimensions.

   b. Write two expressions to find the perimeters of the rectangle and triangle.

   c. Find the width of the rectangle if the perimeters of the figures are equal.