

In exercises 1 - 10, identify the linear equations in one variable.

1) $x - 9 = 13$

2) $x - 15 = 20$

3) $x^2 - 9 = 13$

4) $x^2 - 15 = 20$

5) $\frac{9}{x} = 13$

6) $\frac{15}{x} = 20$

7) $\sqrt{2}x + \pi = 0.\bar{3}$

8) $\sqrt{3}x + \pi = 0.\bar{6}$

9) $|x + 2| = 5$

10) $|x + 5| = 8$

*In exercises 11 - 53 odd, solve each equation using the the addition property of equality. **Check your proposed solutions in problems 11, 19, 29, 37 and 45.***

11) $x - 4 = 19$

13) $z + 8 = -12$

15) $-2 = x + 14$

17) $-17 = y - 5$

$$19) 7 + z = 11$$

$$21) -6 + y = -17$$

$$23) x + \frac{1}{3} = \frac{7}{3}$$

$$25) t + \frac{5}{6} = -\frac{7}{12}$$

$$27) x - \frac{3}{4} = \frac{9}{2}$$

$$29) -\frac{1}{5} + y = -\frac{3}{4}$$

$$31) 3.2 + x = 7.5$$

$$33) x + \frac{3}{4} = -\frac{9}{2}$$

$$35) 5 = -13 + y$$

$$37) -\frac{3}{5} = -\frac{3}{2} + s$$

$$39) 830 + y = 520$$

$$41) r + 3.7 = 8$$

$$43) -3.7 + m = -3.7$$

$$45) 6y + 3 - 5y = 14$$

$$47) 7 - 5x + 8 + 2x + 4x - 3 = 2 + 3 \cdot 5$$

$$49) 7y + 4 = 6y - 9$$

$$51) 12 - 6x = 18 - 7x$$

$$53) 4x + 2 = 3(x - 6) + 8$$

The equations in exercises 55 and 57 contain small geometric figures that represent real numbers. Use the addition property of equality to isolate x on one side of the equation and the geometric figures on the other side.

$$55) x - \square = \triangle$$

$$57) 2x + \triangle = 3x + \square$$

In exercises 59 and 61, use the given information to write an equation. Let x represent the number described in each exercise. Then solve the equation and find the number.

59) If 12 is subtracted from a number, the result is -2. Find the number.

61) The difference between $\frac{2}{5}$ of a number and 8 is $\frac{7}{5}$ of that number. Find the number.

Formulas frequently appear in the business world. For example, the cost, C , of an item (the price paid by a retailer) plus the markup, M , on that item (the retailer's profit) equals the selling price, S , of the item. The formula is

$$C + M = S$$

Use the formula to solve exercise 63.

- 63) The selling price of a computer is \$1850. If the markup on the computer is \$150, find the cost to the retailer for the computer.

The line graph on page 115 shows the decline in U.S. job satisfaction for four years in the period from 1987 through 2006. The graph was obtained from the mathematical model

$$S + 0.8x = 62$$

where S is the percentage of workers satisfied with their jobs x years after 1987. Use this information to solve exercise 67.

- 67) a. Use the line graph to estimate the percentage of U.S. workers who were satisfied with their jobs in 2006.
- b. Use the formula to determine the percentage of U.S. workers who were satisfied with their jobs in 2006. How does this compare with your graphical estimate from part (a)?