

§ 1.3 Modeling with Linear Equations

Translating Key Words and Phrases (see page 99)

Common Formulas (see page 103)

Example 1: Write an algebraic expression for the verbal description.

- a) Five more than the number.

- b) The sum of two consecutive natural numbers.

- c) The product of two consecutive even integers, the first of which is $2n$.

Example 2: Solve for the indicated variable.

- a) $P = 2l + 2w$ Solve for l .
- b) $V = l \cdot w \cdot h$ Solve for w .

Solving Applied Problems

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| Step 1: | Read the problem thoroughly. |
| Step 2: | Give one unknown quantity a variable name and write it down. |
| Step 3: | Draw a picture or make a chart to show the information. (If applicable). |
| Step 4: | Write all other unknowns in terms of the variable. |
| Step 5: | Write an equation in one variable. |
| Step 6: | Solve the equation. |
| Step 7: | Check the solution in the words of the problem to be sure it makes sense. |

Grade Average Problem

To average grades, add up all the grades and divide by the total number of grades.

Example 3: Doug scored 78, 94 and 60 on three trigonometry tests. What grade does he need to make on his fourth test to give him an average of 90?

Geometry Problem (Perimeter)

The perimeter of a shape is the distance around the sides of the shape.

Example 4: A rectangular family room is twice as long as it is wide, and its perimeter is 84 feet. Find the dimensions of the family room.

Investment Problem

Let I = yearly interest, P = principal, r = rate of interest and t = time.
Then $I = P * r * t$.

Example 5: You invested a total of \$10,000 at $4\frac{1}{2}\%$ and $5\frac{1}{2}\%$ simple interest. During one year, the two accounts earned \$508.75. How much did you invest in each account?