

Section 1.3 Models and Applications Definitions

1: Strategy for Solving Word Problems

1. Read the problem. Understand what is given and what the question is. Choose a variable (usually x) to represent one unknown quantity in the problem.
2. Write other expressions for unknown quantities in terms of your chosen variable.
3. Write an equation in terms of your chosen variable that models the conditions of the problem.
4. Solve the equation using methods from section 1.2 to answer the question.
5. Check the solution in the original wording of the problem.

Examples

1) When two times a number is decreased by 3, the result is 11. What is the number?

2) What is 65% of 360?

3) 70% of what number is 252?

4) When a number is decreased by 30% of itself, the result is 28. What is the number?

5) Including 5% sales tax, an inn charges \$252 per night. Find the inn's nightly cost before the tax

6) After a 22% reduction, you purchase a skirt for \$36.62. Find the original price of the skirt before the reduction.

7) Video Store A charges \$9 to rent a video game for one week. Although only members can rent from the store, membership is free. Video Store B charges only \$4 to rent a video game for one week. Only members can rent from the store and membership is \$50 per year. After how many video-game rentals will the total amount spent at each store be the same? What will be the total amount spent at each store?

8) A discount for a bridge costs \$30 per month. The toll for the bridge is normally \$5.00, but it is reduced to \$3.50 for people who have purchased the discount pass. Determine the number of times in a month the bridge must be crossed so that the total monthly cost without the discount pass is the same as the total monthly cost with the discount pass.

9) A room is 2.5 times as long as it is wide, and its perimeter is 84 meters. Find the dimensions of the room.

10) Solve for B: $A = \frac{1}{3}Bh$

11) Solve for M: $P = C + MC$
