KEY

Solving Ratio, Proportion, and Percent Story Problems

Objective

In this lesson, you will

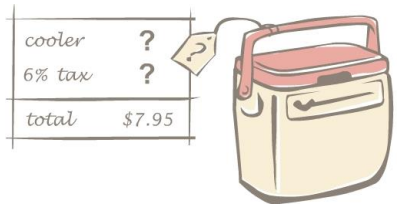
study how to solve real-life problems using addition, subtraction, multiplication, division, fractions, decimals, ratio, proportion, and percent.

Problem-Solving Steps

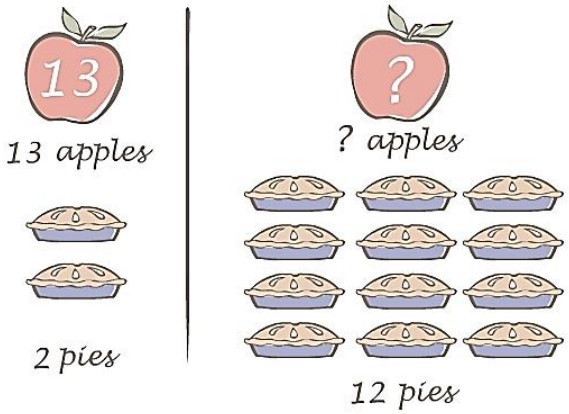
Follow an order of steps to solve story problems using multiplication and containing more than one operation.

1. Decide what the **question** is.
2. List the information you know.
3. **Draw** a picture or chart that shows the information and the question.
4. Write the **steps** that tell you how to find the answer.
5. Write and solve the arithmetic problem for each step.
6. **Check** your work.

Anton bought a picnic cooler. His total bill, with tax, was $7.95. He paid 6 percent sales tax. How much did he pay for the cooler alone without the tax?

Problem-Solving Steps	
1. Decide what the **question** is.	Question: How much did the cooler cost without the tax?
2. **List** the information you know.	• the total bill was $ **7.95** • tax percentage was **6** %
3. **Draw** a picture or chart that shows the information and the question.	
4. **Write** the steps that tell how to find the answer.	1. (•) Addition ( ) Subtraction can be used to show how the total bill is calculated. 2. (•) Multiply ( ) Divide the total bill by the percentage (106%) to determine the item cost. 106% of $ **$7.50** = $7.95
5. **Write** and solve the arithmetic problem for each step.	For step 1: Find the total bill in terms of the cost of the cooler. This means that 106% of the cost of the cooler is the total bill, $7.95. 100% of cooler price (item) + 6% of the cooler price (tax) 106% of cost ($7.95) For step 2: This means that 106% of the cost of the cooler is the total bill, $7.95. Now you can solve for the missing variable. (Divide the percent by 100 to get it in fraction form first.) (106/100) × **$7.50** = $7.95
6. **Check** your work.	Finally, you should always check your work to be sure the answer is correct. For step 1: $7.50 (cooler price) + .45 (6% tax) **$7.95** (cooler + tax) For step 2: (106/100) × $7.50 = **$7.95**

Doreen uses 13 apples for every two pies she bakes. How many apples will she use for 12 pies?

Problem-Solving Steps	
1. Decide what the **question** is.	Question: How many apples does Doreen need for 12 pies?
2. **List** the information you know.	• she uses **13** apples for 2 pies • she wants to make 12 pies.
3. **Draw** a picture or chart that shows the information and the question.	
4. **Write** the steps that tell how to find the answer.	1. Set up a proportion using the 3 numbers you know. Identify the relationship between the numerators and the denominators. 2. Solve for the **missing** number.
5. **Write** and solve the arithmetic problem for each step.	For step 1: Set up a proportion using the 3 numbers you know. Identify the relationship between the **numerators** and the denominators. $\frac{13}{2} = \frac{?}{12}$ For step 2: Solve for the missing number. $(13)(12) = x(2)$ $x = 78$
6. **Check** your work.	Finally, you should always check your work to be sure the answer is correct. $\frac{13}{2} = \frac{78}{12}$

Summary

What are the benefits of following each of the six problem-solving steps in order when working through a problem?

Answers will vary.