Name _____ Date _____

LESSON 1.5

Study Guide

For use with the lesson "Use a Problem Solving Plan"

GOAL **Use a problem solving plan to solve problems.**

Vocabulary

A **formula** is an equation that relates two or more quantities.

A Problem-Solving Plan

STEP 1 Read and Understand Read the problem carefully. Identify what you know and what you want to find out.

STEP 2 Make a Plan Decide on an approach to solving the problem.

STEP 3 Solve the Problem Carry out your plan. Try a new approach if the first one isn't successful.

STEP 4 Look Back Once you obtain an answer, check that it is reasonable.

EXAMPLE 1

Read a problem and make a plan

A group of people go to a play. Adult tickets cost $8 and tickets for children under twelve years of age cost $5. There are 4 children under twelve. The group spends $44 for all the tickets. How many adults attended the play?

Solution

STEP 1 Read and Understand

What do you know?

You know the cost of each ticket, the number of children attending, and the total cost of the tickets.

What do you want to find out?

You want to find the number of adult tickets purchased.

STEP 2 Make a Plan

Use what you know to write a verbal model that represents what you want to find out. Then write an equation and solve it.

Exercise for Example 1

Identify what you know and what you need to find out. Do *not* solve the problem.

1. A salesman is reimbursed $50 a day for food and lodging. He also receives $.35 for each mile driven. He drives 124 miles and is reimbursed $193.40. How many days was the trip?

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Study Guide *continued*

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EXAMPLE 2 Solve a problem and look back

Solve the problem in Example 1 by carrying out the plan. Then check your answer.

Solution

STEP 3 **Solve the Problem** Write a verbal model. Then write an equation. Let a be the number of adult tickets purchased.

Cost of adult tickets	•	Number of adult tickets	+	Cost of children's ticket	•	Number of children's ticket	=	Total cost
8	•	a	+	5	•	4	=	44

The equation is $8a + 20 = 44$. One way to solve the equation is to use the strategy *guess*, *check* and *revise*.

Guess a number that seems reasonable considering the total cost of \$44. Try 2.

$8a + 20 = 44$	Write equation.
$8(2) + 20 \stackrel{?}{=} 44$	Substitute 2 for a.
$36 \neq 44$ ✗	Simplify; 2 does not check.

Because $36 < 44$, try a larger number. Try 3.

$8a + 20 = 44$	Write equation.
$8(3) + 20 \stackrel{?}{=} 44$	Substitute 3 for a.
$44 = 44$ ✓	Simplify.

The group bought 3 adult tickets.

STEP 4 **Look Back** Each adult ticket purchase adds \$8 to the total ticket cost. Make a table.

Number of adults	0	1	2	3	4
Total cost	\$20	\$28	\$36	\$44	\$52

The total cost is \$44 when 3 adult tickets are purchased. The answer in Step 3 is correct.

Exercise for Example 2

Use a problem solving plan to solve the problem.

2. You have saved \$165 to buy a video camera that costs \$300. You plan to save \$15 each week. How many weeks will it take to save for the video camera?