

1.4 PROBLEM SOLVING

Polya's Corner

The following *cookie jar problem* was used on many professional development workshops for teachers. Now it is your turn to try to solve it.

There was a jar of cookies on the table. Becky was hungry because she hadn't had breakfast, so she ate half the cookies. Then Jill came along and noticed the cookies. She thought they looked good, so she ate a third of what was left in the jar. Denise came by and decided to take a fourth of the remaining cookies with her to her next class. Then Jodi came dashing up and took a cookie to munch on. When Megan looked at the cookie jar, she saw that there were two cookies left. How many cookies were there in the jar to begin with?

1. Understand the problem. Tell the problem with your own words. What are you expected to do? What are your expectations about the number of cookies in the cookie jar?
2. Devise a plan. Try to find many different ways to answer the question.
3. Carry out the plan. Try to organize your work so that others could follow what you are doing.
4. Look back. Were your expectations about the number of cookies in the cookie jar met? What caused difficulty for you in this problem? What helped you in solving this problem?

EXERCISES

Solve problems 1-4 using Polya's 4 steps. Make sure to write down what you understand, what strategy you are planning to use, and explain the strategy. Try at least two different ways to solve each problem.

1. I am thinking about a number. One half is a third of my number. What is my number?
2. A balance scale was in perfect balance when Jane placed a box of candy on one pan of the balance and $\frac{3}{4}$ of the same-sized candy box together with $\frac{3}{4}$ -pound weight on the other pan. How much did the full box of candy weigh?
3. Samuel was riding in the back seat of the station wagon on the way home after a long and tiring day at the beach. He fell asleep halfway home. He didn't wake up until he still had half as far to go as *he had already gone while asleep*. How much of the entire trip home was Samuel asleep?
4. Diana bought a piece of cloth 48 inches wide and 1 yard long. It cost \$12. She cut off one-fourth and used it to make a tablecloth. From the remaining material, she used a piece that was 12 inches wide and 12 inches long to make a scarf and a piece 1.5 feet by 2 feet to make the cover for a pillow. Her sister saw Diana's sewing efforts and said she really liked the material. She wanted to buy what was left to do some sewing of her own. Diana was willing to sell the leftover material for the rate that she had paid for it. How much should she charge her sister?