

Worksheet 4 - Problem Solving techniques

The most difficult part of Chapter 1 is figuring out which strategy to use for each problem. Complete the following problems using Pólya's techniques. Make a thought out choice which technique you will use and be sure to state it on your paper.

1. A flower bed measuring 8 feet by 10 feet is bordered by a concrete wall 2 feet wide. What is the area of the concrete wall?
2. Because of the recent stock market crash, Homer, Marge, and Bart all get two jobs to help support the family while Lisa goes to prep school but no two family members have the same job. The occupations are doctor, engineer, teacher, lawyer, writer, and painter. Using the following information, determine who holds which jobs.
 - The doctor has lunch with the teacher.
 - The teacher went fishing with Marge who is not the writer.
 - The painter is related to the engineer.
 - The doctor hired the painter to do a job.
 - Homer lives next to the writer.
 - Bart beat Homer and the painter at tennis.
 - Bart is not the doctor.
3. How many books must you choose from among a collection of 7 mathematics books, 13 physics books, 21 novels, and 5 atlases to be certain that you have at least 4 books of the same type?
4. The sum of two numbers is 15 and their difference is 4. Find the two numbers using first guess and check and then again using a variable.
5. Determine the sum of all even numbers between 1 and 300.
6. While three watchmen were guarding an orchard, a thief slipped in and stole a bunch of apples. On the thief's way out, he met each watchman, one after another, and bribed each by giving them half his apples plus two additional apples. In this manner he escaped with exactly one apple. How many apples did the thief originally steal?