

**GRADE 12 ESSENTIAL  
PROBLEM SOLVING  
VARIOUS PROBLEMS**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Different Strategies.** There are many strategies to solve a problem. Guess and Check; Make a list; Work Backwards; Solve a Simpler Problem; Make a Table; Draw a Picture; Use Logical Reasoning; Use a Venn Diagram; and more.

**Show Work:** A numerical answer is not sufficient!

1. In the Land of Pi, there are six cities arranged in a circle. Each city is connected to every other city by a straight road. How many roads are there?

2. Torn made a New Year's resolution to stop spending all his money. He has a plan. During January, he will save \$1. During February, he will save \$3. During March, he will save \$5. During April, he will save \$7. If he continues to follow this plan, \$ how much money will he save altogether in one year?

3. At a math contest, 12 problems were given. Five points were awarded for each correct answer, and two points were deducted for each incorrect answer. Matt's score was 39. How many correct answers did he have?

4. In the mythical kingdom of Permutatus, wizards have special 2-digit license plates. The first digit is greater than 6, and the second digit is odd. The two digits cannot be the same. How many different license plates are possible?

5. Today is the teacher's birthday. The teacher said: "If you multiply my age by 3, then subtract 20, the result is 100." How old is the teacher?

6. Tex is building a corral in the shape of a rectangle 40 feet long and 32 feet wide. He plans to put a fencepost every 8 feet around the corral. How many posts will he need?
7. Samantha has five objects, weighing 1 kg, 2 kg, 3 kg, 4 kg, and 5 kg. If she weighs them two at a time, how many different weights can she get?
8. The science club wants to charter a bus to the Space Museum. The Red Line charges \$50 for the first hour plus \$30 for each additional hour. The Blue Line charges \$1 00 for the first hour plus \$20 for each additional hour. What is the smallest number of hours for which the two lines would charge the same amount?

Ans: 15, \$144, 9, 13, 40, 18, 7, 6