PIMS Elementary Grades Math Competition
29 May 2004
Target Round - Grade Six Division

NAME: _____

SCHOOL: _____

1. Find the value of the following expression:

$1+2-3-4+5+6-7-8+\ldots+57+58-59-60=$

_____ 1

2. Calculate: $501^2-499^2=$

_____ 2

3. The cook in a pizzeria has prepared three different types of dough for baking pizza, and eight different toppings. The customer can choose the dough type and exactly two different pizza toppings. How many different kinds of pizza can the customer choose ?

_____ 3

4. Suppose that you are given a cube with sides of 1 *cm*. Now you glue new cube with 1 *cm* sides to each of the six faces of your original cube (altogether you glue six new cubes). The seven cubes form a new solid. What is the surface area of that new solid (in cm^2) ?

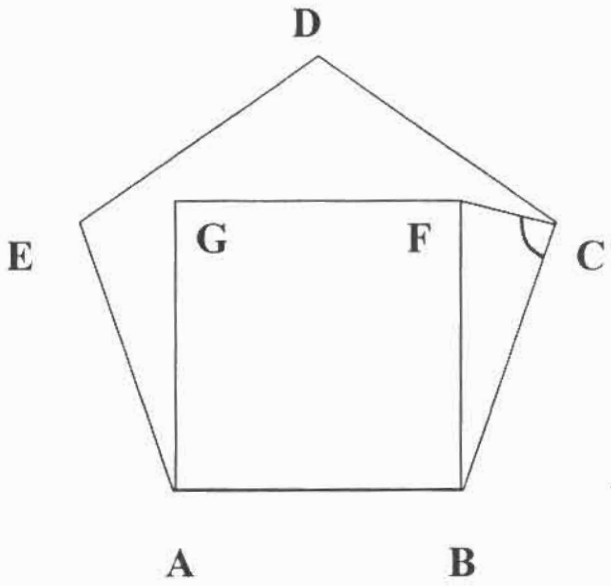
_____ 4

Grade Six (6) Division

5. A merchant carrying rice passes through three stations.
At the first station, he sells $\frac{1}{4}$ of his rice. At the second station he sells $\frac{1}{5}$ of what remains, and at the third station, $\frac{1}{6}$ of what remains.
He ends up with 9.5 *kg* of rice.
How much rice (in *kg*) did he start with ?

_____ 5

6. In the picture, ABCDE is a regular pentagon and ABFG is a square. Find the angle ∠FCB (in degrees).



_____ 6

7. The numbers 1 to 10 are written on 10 separate cards.
Two cards are selected at random.
What is the probability that a number on one selected card is exactly three times the number on the other selected card ?
(Express your answer as a common fraction).

_____ 7

8. The airplane was full when it left Vancouver.
At the first stop (Kelowna), half of the people got off the plane and 8 got on.
At the next stop (Prince George), half of the people who were on board got off, 11 got on, and the plane was full again.
How many people were on the plane when it left Vancouver ?

_____ 8

Grade Six (6) Division

9. How many five-letter "words" can be made using exactly two A's and three B's, if no two A's can be next to each other ?

_____ 9

10. One side of a rectangle is $\frac{9}{50}$ of the perimeter.
The area of the rectangle is 36 square units.
How many units are in the perimeter ?

_____ 10

11. Joel says to Kevin: "Give me $100, and I shall become twice as rich as you."
Kevin replies: "Give me $10, and I shall become six times as rich as you."
How many dollars does Joel have ?

_____ 11

12. A number is called a palindrome if it does not change when the order of the digits is reversed (example: 282).
How many three-digit numbers n are there such that n and 2n are both palindromes ?
(Example: one such number is 141 because both 141 and 282 are palindromes).

_____ 12