PIMS Elementary Grades Math Competition NAME: _____
24 May 2003
Sprint Round - Grade Six Division SCHOOL: _____

1. Find: $6 \times 59.99 =$ _____ 1

2. Find: $(3+7+11+\ldots+119+123)-(4+8+12+\ldots+116+120) =$ _____ 2

3. Find N in the Canadian coin equation: 17 dimes $-$ N nickels = 3 dimes. _____ 3

4. The perimeter of square A is 8 cm. If the area of square B is nine times the area of square A, what is the perimeter of square B ? _____ 4

5. Find the seventh term in the following sequence: 0,2,5,9,14,… _____ 5

6. What is the remainder when $1 \times 2 \times 3 \times \cdots \times 10$ is divided by 256 ? _____ 6

7. A cube of cheese is 4 cm wide, 4 cm long and 4 cm high. Three faces of the cube that meet in a corner are covered with thin layer of wax. The cheese is then cut into 64 small cubes with sides of length 1 cm. How many of these small cubes have no wax on them ? _____ 7

8. Andrea is 27 years old and her sister Betty is 6 years younger. Their father is now three times as old as Betty was 4 years ago. What will be his age next year ? _____ 8

9. At a rock concert, the stadium is 95% full. There are 19950 people at the concert. How many empty seats are there ? _____ 9

10. A poster is 40 cm wide. There are two pictures on the poster, each of them 25 cm wide and 20 cm high. Together the pictures take up $1/3$ of the area of the poster. What is the height of the poster (in cm) ? _____ 10

11. How many positive whole numbers smaller than 2003 have 2 as their first digit and 1 as their last digit ? _____ 11

12. A 1000-seat multiplex cinema building is divided into three theatres. There are 470 seats in the first theatre, and the third theatre has 150 seats less than the second theatre. How many seats are in the third theatre ? _____ 12

13. Some kids went on a school ski trip by car, 3 to a car, and the rest went by van, 5 to a van. In total, 140 kids went, using 40 vehicles. How many kids went by car ? _____ 13

14. Calculate: $666^2 - 333^2 =$ _____ 14

15. Find N: $2 \times N \times 7 = 1 + 5 - 9 + 13 - 17 + 21$. _____ 15

16. M, N, P are positive whole numbers that satisfy $N = M + M + M$, and $P = N + N$. Find: $\frac{N}{P} + \frac{M}{P} =$ _____ 16

17. A trucker stopped for gas when her gas tank was $1/8$ full. She bought 40 litres of gas for $30. She then noticed that her tank was only $3/4$ full, so she filled it completely. How much did she pay for the last $1/4$ tank ? _____ 17

18. Fresh tomatoes are 90% water, but sun-dried tomatoes are only 40% water. How much fresh tomatoes (in kg) is needed to make 5 kg of sun-dried tomatoes ? _____ 18

19. A restaurant bought 140 dollars worth of wine at $10 a bottle and 140 dollars worth of wine at $14 a bottle. What was the average cost per bottle (round your answer to the nearest cent) ? _____ 19

20. You are on a game show where there are five questions numbered from 1 to 5 and five possible answers labelled A, B, C, D, and E. To win, the answers must be arranged in a certain order so that every question is answered correctly. If you know the answer to one of the questions but just guess the answers at random for the other four questions, what chance do you have to win ? Express your answer as a common fraction. _____ 20

21. A rectangle is 12 cm long and 8 cm wide. Find the area (in square centimetres), of the circle that goes through the four corners of the rectangle. Express your answer in terms of π. _____ 21

22. Find the largest prime number that divides 8118. _____ 22

23. Jamie and Kevin both walk from their house to the park and without stopping, walk back home again. Total walking distance for each one of them is 24 km. Jamie walks twice as fast as Kevin. If both of them leave the house together, what distance will Jamie have walked once he meets Kevin ? _____ 23

24. When Beth goes from her house to Whistler, her car uses on average 13 litres of gas every 100 km. On the way back from Whistler, her car averages 11 litres of gas for every 100 km. The entire round trip uses a total of 33 litres of gas. What is the distance in km between Beth's house and Whistler ? _____ 24

25. The digit sum (2+3) of 23 is a multiple of 5, and so is the digit sum (8+7) of 87. How many two digit numbers are there whose digit sum is a multiple of 5 ? _____ 25