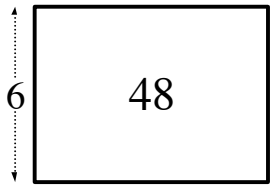
PIMS Elementary Grades Math Competition NAME: _____
3 May 2008
Sprint Round - Grade Six Division SCHOOL: _____

1. N is 12% of 400. What is the value of 25% of N? _____ 1

2. A rectangle has area 48, and one of its sides has length 6.
What is the perimeter of the rectangle? _____ 2



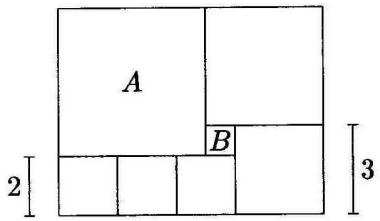
3. Two fair dice are tossed. What is the probability that the sum is 11?
Express the answer as a common fraction. _____ 3

4. How many minutes will pass between 4:25 PM today
and 4:27 PM tomorrow? _____(minutes) 4

5. Convert the fraction $\frac{11}{20}$ to a decimal number. _____ 5

6. At the post office, Diana spent a total of $2.00 to buy some 52 cent stamps and some 11 cent stamps, and received no change.
How many 11 cent stamps did Diana buy? _____(stamps) 6

7. Seven square tiles are arranged as shown in the figure to form a large rectangle.
The size of two of the tiles is also shown in the figure. Tile ***A*** is the largest,
and tile ***B*** is the smallest. How many tiles of size ***B*** are needed
to cover the entire area covered by tile ***A***? _____(tiles) 7



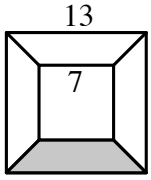
8. Simplify:
$\frac{1}{2} \times \frac{2}{3 \times 3} \times \frac{2 \times 3}{4 \times 4 \times 4}$ _____ 8

9. Let $D(x, y) = x^2 + y$. Find $D(11, 11)$. _____ 9

Grade Six (6) Division

10. Mary's first three test marks were 85, 96, and 92.
What is the lowest mark that she can get on the fourth test so that her average on the four tests will be at least 93? _____ 10

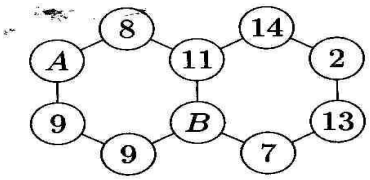
11. In the figure below, the two squares with sides 13 and 7 have the same centre, and lines that look parallel are parallel.
What is the area of the shaded trapezoid? _____ 11



12. Find the sum of all odd primes that divide 2008. _____ 12

13. A drug company's profit is 20% of its sales revenue. If the company increases its prices by 25%, and if the number of units sold does not change, what percent of sales revenue will profit be? _____(%) 13

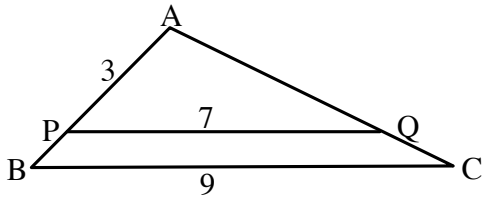
14. The sum of the numbers in each ring is 55. What is value of ***A+B***?



_____ 14

15. Two pears and three apples weigh a total of 510 grams,
while three pears and two apples weigh a total of 570 grams.
All apples have equal weight and all pears have equal weight.
What is the weight (in grams) of one apple? _____(grams) 15

16. In the figure below, PQ is parallel to BC. Also, BC=9, PQ=7, and AP=3.
What is the length of AB? Express your answer as a common fraction.



_____ 16

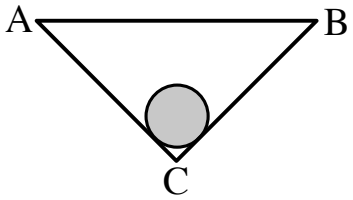
17. Bus fare is $2.50 per adult and $1.50 per child.
One day, 600 people rode the bus, and paid a total of $1380 in fares.
How many adults rode the bus that day? _____(adults) 17

18. $1 = 1 \times 1$, $4 = 2 \times 2$, $9 = 3 \times 3$, and thus, 1, 4, 9,
and so forth are called perfect squares.
What was the last year before 2008 that was a perfect square? _____ 18

Grade Six (6) Division

19. Rachel's Toyota Prius uses 5.3 litres of gas per 100 km driven in the city, and 4.3 litres of gas per 100 km driven on the highway. Rachel drove 60 km in the city and 40 km on the highway.
What was her average consumption of gas (in litres per 100 km)?
Give the answer correct to one decimal place. _____ 19

20. In the figure below, ABC is an isosceles right-angled triangle (the angle at C is 90°). The circle touches AC and AB, and its area (shaded) is $\frac{16}{\pi}$.
Given that the circumference of the circle is equal to the length of AC, what is the area of the triangle ABC? _____ 20



21. All the faces of 64 identical small cubes are first painted white.
Then, one big cube is made by combining all of these small cubes.
All six faces of the big cube are then painted black.
How many of the 64 small cubes have at least two black faces? _____(cubes) 21

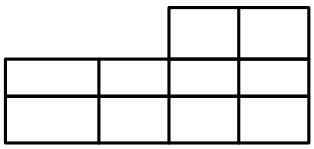
22. The ***integer*** part of a positive decimal number is the part before the decimal point.
The ***fractional*** part of a positive decimal number is the part from the decimal point on.
For example, the integer part of 7.9 is 7, while its fractional part is 0.9.
What is the largest number whose fractional part is equal to one-fifth of its integer part? Express your answer using decimal notation. _____ 22

23. Find the value of $\frac{a-3b}{a-2b}$ if $\frac{a}{b}=\frac{15}{4}$.
Express your answer as a common fraction. _____ 23

24. Find the smallest prime number that has a digit sum of 20. _____ 24

25. A group of seven people, two of whom are Goby and Bogy, line up in a row at random. What is the probability that there is exactly one person between Goby and Bogy? Express your answer as a common fraction. _____ 25

26. How many different rectangles are there altogether in the diagram?



_____ 26