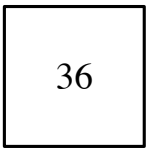
PIMS Elementary Grades Math Competition NAME: _____
3 May 2008
Sprint Round - Grade Five Division SCHOOL: _____

1. N is 6% of 1000. What is the value of 25% of N? _____ 1

2. A square has area 36. What is the perimeter of the square?



_____ 2

3. Two fair dice are tossed. What is the probability that the sum is 2?
Express the answer as a common fraction. _____ 3

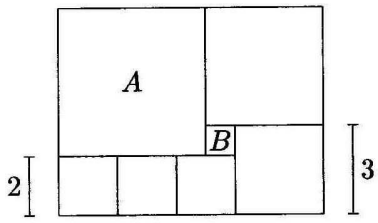
4. How many minutes will pass between 4:25 PM today
and 7:07 PM today? _____(minutes) 4

5. Convert the fraction $\frac{23}{50}$ 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 52 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:
$\frac{1}{2}\times\frac{2}{3}\times\frac{3}{4}\times\frac{4}{5}\times\frac{5}{6}$ _____ 8

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

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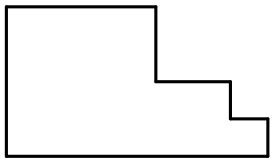
10. Mary's first two test marks were 85 and 99.
What is the lowest mark that she can get on the third test so that her average on the three tests will be at least 90? _____ 10

11. The figure below is made by sliding together a 4×4 square, a 2×2 square, and a 1×1 square. What is the perimeter of the figure?

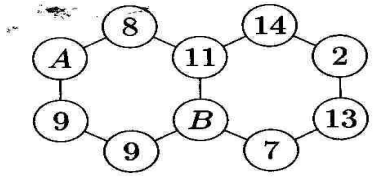


_____ 11

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

13. Dan had $10.00. The cost of a bagel (including tax) is 73 cents. Dan bought as many bagels as he could. How much money did he get back in change? Give the answer in cents. _____(cents) 13

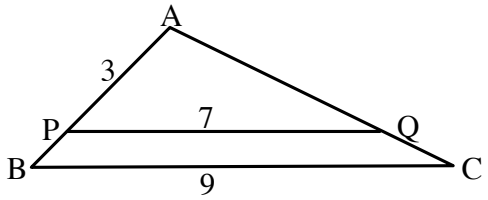
14. The sum of the numbers in each ring is 55.
What number is represented by A?



_____ 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 combined weight (in grams) of one apple and one pear? _____(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.



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17. Bus fare is $2.50 per adult and $1.50 per child. One day, 400 people rode the bus, and paid a total of $750 in fares. How many adults rode the bus that day? _____(adults) 17

18. $1=1\times1$, $4=2\times2$, $9=3\times3$, and thus, 1, 4, 9, and so forth are called perfect squares. What will be the first year after 2008 that will be a perfect square? _____ 18

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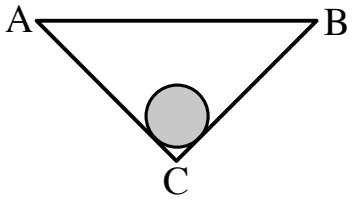
19. Rachel's Toyota Prius uses 5.3 litres of gas per 100 km driven in the city, and 4.3 litres of gas per 100 km driven on the highway. Rachel drove 60 km in the city and 40 km on the highway.
What was her average consumption of gas (in litres per 100 km)?
Give the answer correct to one decimal place. _____ 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 exactly two black faces? _____(cubes) 21

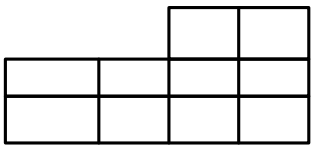
22. The ***integer*** part of a positive decimal number is the part before the decimal point.
The ***fractional*** part of a positive decimal number is the part from the decimal point on.
For example, the integer part of 7.9 is 7, while its fractional part is 0.9.
What is the largest number whose fractional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

23. Find the value of $\frac{a-b}{a-2b}$ if $\frac{a}{b}=\frac{9}{4}$. _____ 23

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

25. A group of six people, two of whom are Goby and Bogy, line up in a row at random. What is the probability that there is no one between Goby and Bogy? Express your answer as a common fraction. _____ 25

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



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