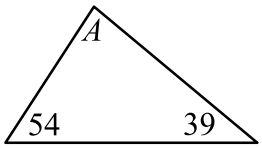
PIMS Elementary Grades Math Competition NAME: _____
30 April 2011
Sprint Round - Grade Five Division SCHOOL: _____

1. What is the value of one-half of one-fifth of 1000?

_____ 1

2. Two of the angles of a triangle are 39 degrees and 54 degrees, as shown. What is the value, in degrees, of angle A?



_____(°) 2

3. If you divide 2011 by 101, what is the remainder? _____ 3

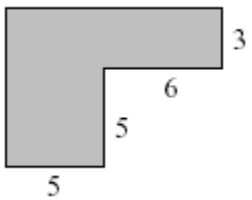
4. Round $\frac{5}{6}$ to a decimal correct to 2 decimal places. _____ 4

5. Calculate: $\frac{(2011+4+30)\times(2011-11)}{1000} =$ _____ 5

6. You toss a fair coin 3 times.
What is the probability that you get 3 heads in a row?
Express your answer as a common fraction. _____ 6

7. Alan, Bob, and Guy have a total of 30 dollars between them.
Alan has 5 dollars and Bob has four times as much money as Guy.
How many dollars does Guy have? _____($) 7

8. All angles of the shape below are right angles.
What is the length of the largest side of the shape?



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9. A pack of 25 pens costs $8.00. What is the unit cost of a pen in cents? _____(cents) 9

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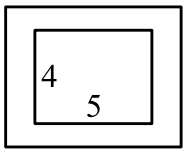
10. The sides of the smaller rectangle are 4 and 5. You obtain a larger rectangle by increasing each side of the smaller rectangle by 50%. What is the area of the larger rectangle?



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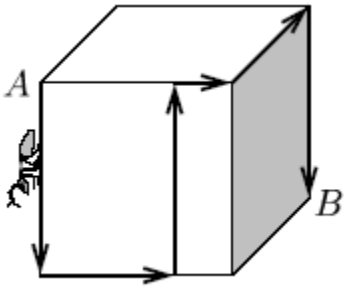
11. The number N is 55% of the number M and their sum is 310. What is the positive difference between M and N? _____ 11

12. N is the largest number smaller than 10000 whose digits are distinct odd numbers. What is the digit sum of N? _____ 12

13. The ant walked from A to B on the surface of the cube along the specified path. The side of the cube is 3 cm. How many cm did the ant walk in total?



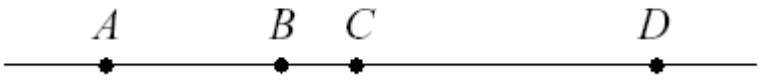
_____(cm) 13

14. What is the value of N ?
$2011 \times 100 \times 9 = 20110 \times N$ _____ 14

15. Dan walked for 2 hours at a speed of 75 metres per minute. What was the distance (in km) that he walked? _____(km)15

16. How many different 3-digit numbers use each of the digits 1, 2, and 3 exactly once? _____ 16

17. The length of AC is 16, $AB/CD = 11/18$, and $BC/BD = 5/23$.
What is the length of AD ?



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18. Ann and Betty independently choose at random a whole number between 1 and 5 (inclusive). What is the probability that their numbers add up to 7 or less?
Express your answer as a common fraction. _____ 18

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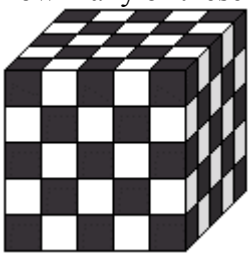
19. Let $a\#b = a \times b + 2b$. What is the value of $(1\#2)\#3$? _____ 19

20. What is the smallest prime larger than $\sqrt{2011}$? _____ 20

21. Amy competed in three Elmacon competitions (each out of 50). In the first she scored 20, in the second she increased her score by 40% and in the third she increased her score by 50% (over her score in the second competition). What was her score in the third competition? _____ 21

22. The wooden cube below has side 5 and each of its 6 faces is painted with a pattern of white painted squares and black painted squares, as shown. If we cut this cube into 125 identical cubes with side 1 each, how many of these smaller cubes have no paint on any of their faces?



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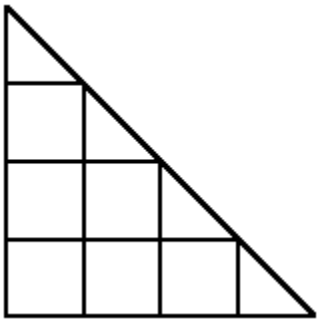
23. Consider the set $\{a,b,c,d,e\}$. This set has five members. How many subsets of this set have either one, two, three, four, or five members? Note: $\{b,e,d\}$ is the same 3-member subset of $\{a,b,c,d,e\}$ as $\{e,b,d\}$. _____ 23

24. How many triangles are in the figure below?



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25. Kay had 600 Canadian dollars. In 2007 she used half of her Canadian dollars to buy Japanese yen at the rate of 128 yen per Canadian dollar, and she used the other half to buy US dollars at the rate of 96 US dollars per 100 Canadian dollars. Two years later she used the Japanese yen and the US dollars to buy Canadian dollars at the rate 1 Canadian dollar for every 96 Japanese yen, and 100 Canadian dollars for every 80 US dollars. How many Canadian dollars did she end up with? _____($) 25

26. Suppose that you have a list of all the primes between 10 and 35. How many of the positive numbers smaller than 35 are multiples of numbers on your list? For example, the numbers 19, 29, and 33 satisfy the condition, while the numbers 15, 25 and 32 do not. _____ 26