



India 2nd Elementary Mathematics International Contest

Individual Contest

Time Limit – 90 Minutes 10th September 2004 Lucknow, India
Team _____ Contestant No. _____ Score _____
Name _____

- Q1. There are 5 trucks. Trucks *A* and *B* each carry 3 tons. Trucks *C* and *D* each carry 4.5 tons. Truck *E* carries 1 ton more than the average load of all the trucks. How many tons does truck *E* carry?
- Q2. Let $A = 200320032003 \times 2004200420042004$ and
 $B = 200420042004 \times 2003200320032003$.
Find $A - B$.
- Q3. There are 5 boxes. Each box contains either green or red marbles only. The numbers of marbles in the boxes are 110, 105, 100, 115 and 130 respectively. If one box is taken away, the number of green marbles in the remaining boxes will be 3 times the number of red marbles. How many marbles are there in the box that is taken away?
- Q4. Find the smallest natural number which when multiplied by 123 will yield a product that ends in 2004.
- Q5. Peter has a weigh balance with two pans. He also has one 200 g weight and one 1000 g weight. He wants to take 600 g of sugar out of a pack containing 2000 g of sugar. What is the minimum number of moves to accomplish this task?



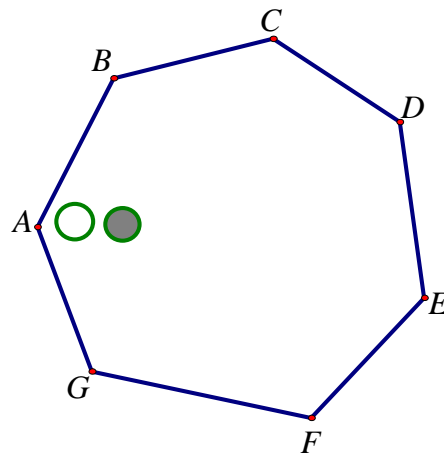
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- Q6. It takes 6 minutes to fry each side of a fish in a frying pan. Only 4 fish can be fried at a time. What is the minimum number of minutes needed to fry 5 fish on both sides?
- Q7. John and Carlson take turns to pick candies from a bag. John picks 1 candy, Carlson 2 candies, John 3, Carlson 4 and so forth. After a while there are too few candies to continue and so the boy whose turn it is, takes all the remaining candies. When all the candies are picked, John has 1012 candies in total. What was the original number of candies in the bag?
- Q8. There are five positive numbers. The sum of the first and the fifth number is 13. The second number is one-third of the sum of these five numbers, the third number is one-fourth of this sum and the fourth number is one-fifth of this sum. What is the value of the largest number?
- Q9. In a class of students, 80% participated in basketball, 85% participated in football, 74% participated in baseball, 68% participated in volleyball. What is the minimum percent of the students who participated in all the four sports events?
- Q10. Three digit numbers such as 986, 852 and 741 have digits in decreasing order. But 342, 551, 622 are not in decreasing order.
- Each number in the following sequence is composed of three digits:
- 100, 101, 102, 103, ..., 997, 998, 999.
- How many three digit numbers in the given sequence have digits in decreasing order?



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Q 11. In the following figure, the black ball moves one position at a time clockwise. The white ball moves two positions at a time counter-clockwise. In how many moves will they meet again?



Q12. Compute: $1^2 - 2^2 + 3^2 - 4^2 + \dots - 2002^2 + 2003^2 - 2004^2 + 2005^2$.

Q13. During recess one of the five pupils wrote something nasty on the blackboard.

When questioned by the class teacher, they answered in following order:

A: "It was **B** and **C**."

B: "Neither **E** nor I did it."

C: "**A** and **B** are both lying."

D: "Either **A** or **B** is telling the truth."

E: "**D** is not telling the truth."

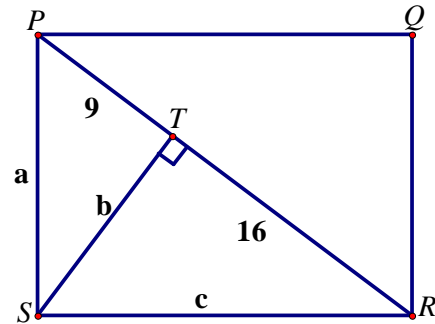
The class teacher knows that three of them never lie while the other two may lie.

Who wrote it?



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Q14. In the figure below, $PQRS$ is a rectangle. What is the value of $a + b + c$?



Q15. In the following figure, if $CA = CE$, what is the value of x ?

