2006 National Finals

Level 2

Lightning Round

Question 1

Betty wants to purchase a bicycle but is $23 short. Claire wants to purchase the same bicycle but is $25 short. If they combine their money, they will have just enough to buy the bicycle. What is the cost of the bicycle (in dollars)?

Question 2

Bob collects stamps. Each day he adds 4 stamps to his collection.
At the end of three days he has 50 stamps. How many stamps
does he have at the end of 10 days?

Question 3

Roxanne and May share a sum of money equally. Roxanne's share is a multiple of $8 and May's share is a multiple of $12. What is the largest possible sum of money shared by them (in dollars) if it does not exceed $200?

Question 4

In a factory, machine A can produce 230 fortune cookies in 5 minutes, while machine B can produce 20 more fortune cookies in the same 5 minutes. The factory receives an order for 4800 fortune cookies. How long (in minutes) does it take both machines to produce the 4800 fortune cookies, assuming the 2 machines are operating together continuously?
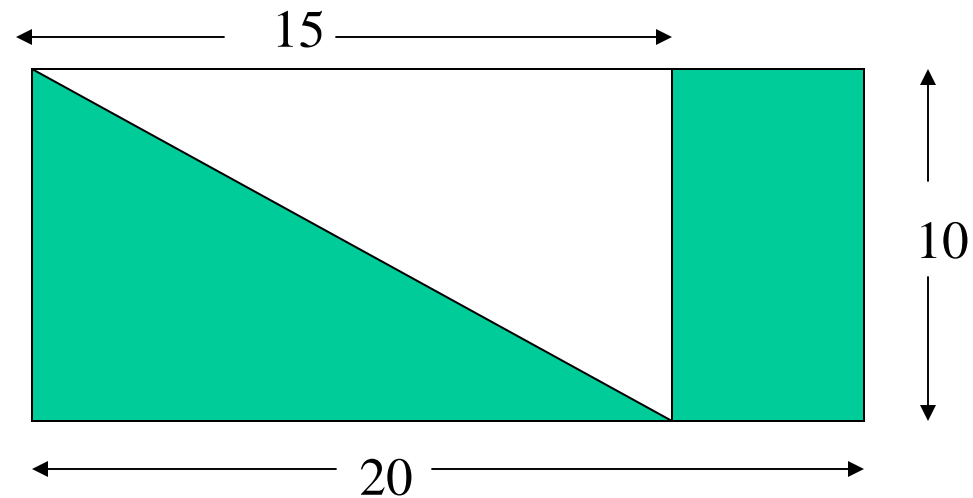
Question 5

If a kindergarten teacher places her children 4 on each bench, there will be 3 children who will not have a place. However, if 5 children are placed on each bench, there will be 2 empty places. What is the smallest number of children the class could have?

Question 6

A crew of 8 people can build a concrete wall in 6 days. Suppose 4 more people had joined the crew at the start. Assume that each person works at the same rate as each of the other people. How many days would it have taken the new crew to build the same wall?
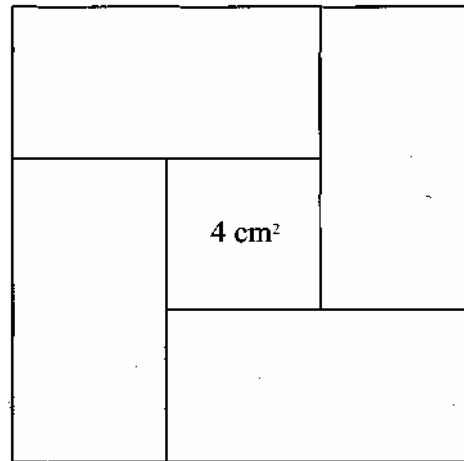
Question 7

Find the area of the of the shaded portion (in sq. units)?

Question 8

The big square consists of four identical rectangles and a small square. If the area of the big square is 49 square centimeters and the area of the small square is 9 square centimeters, find the perimeter (in centimeters) of each rectangle.

4 cm²

Question 9

What is the maximum number of regions into which the interior of a circle can be cut by 3 straight lines?

Question 10

The product of 3 brothers' ages is 175. Two are twins. How old is the other one?

Question 11

A salesman drives from Town A to Town B. The first half of the distance of his journey, he drives at a constant speed of 80 km/hr. The second half of the distance of his journey, he drives at a constant speed of 120 km/hr.

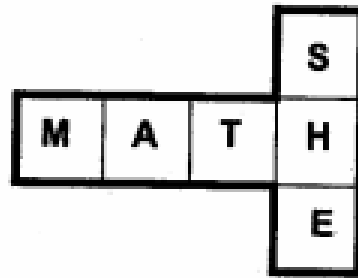What is the average speed of his trip in km/hr?

Question 12

What day of the week is two days before yesterday if two days from today is Saturday?

Question 13

A woman spent two-thirds of her money. She lost two-thirds of the remainder and then had $4 left. With how much money (in dollars) did she start with?

Question 14

The figure below is cut out on the thick outer lines and folded on the thin inner lines to form a cube. Which letter will be on the face of the cube opposite the letter **T**?

Question 15

A square piece of paper is folded in half to form a rectangle. This rectangle has a perimeter of 24 cm. Find the area of the original square, in sq cm.

Question 16

A study of 50 high school students showed that exactly 25 of them took Biology, exactly 20 of them took Chemistry, and exactly 12 of them took both subjects. How many of the 50 students took neither Biology nor Chemistry?

Question 17

The cost of sunglasses and a case for them is $10. If the sunglasses cost $9 more than the case, what is the cost of the case?

Question 18

A total of fifteen pennies are put into four piles so that each pile has a different number of pennies. What is the smallest possible number of pennies that could be in the largest pile?

Question 19

If **a** is divided by **b**, the result is 3/4. If **b** is divided by **c**, the result is 5/6. What is the result when **a** is divided by **c**? Express your answer as a common fraction in lowest terms.

Question 20

When two people shake hands with one another, that counts as one "handshake." Every person in a room shakes hands with each other person in the room exactly once. There are a total 15 "handshakes". How many people are in the room?