

NCC 2015

Part D

Student name: _____

1. There are 6 targets placed 5 m apart beside each other in a straight line. If two archers each hit one **different** target at random, what is the probability that the two targets hit are exactly a distance of 10 m from each other?

Answer: _____

2. How many numbers between 1 and 99, inclusive, are multiples of 3 or 5 but *not* of both?

Answer: _____

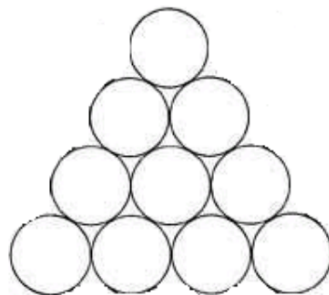
3. At the Prime Pizzeria, a small pizza costs \$7, a medium costs \$9, and a large costs \$12. Pizzas can have up to 3 additional toppings, but each additional topping costs \$3. Additionally, the Prime Pizzeria only accepts orders with a final cost that is a prime number. What is the cost of the most expensive pizza possible, in dollars?

Answer: _____

4. Robert is in a math club and more than 93% of the people in it are girls. What is the minimum possible number of people in the club? Robert is a boy.

Answer: _____

5. There are 10 identical coins placed on a table as in the diagram. What is the minimum number of coins needed to be removed so that no matter which 3 coins we choose, their centres do not form an equilateral triangle?

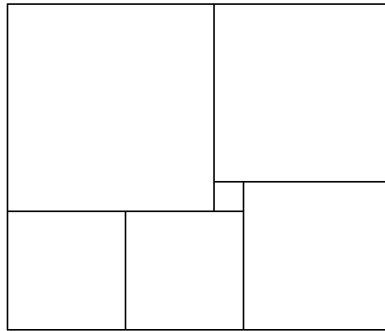


Answer: _____

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6. A rectangle is divided into squares as shown in the diagram. If the smallest square has side length 1, what is the side length of the largest square?



Answer: _____

7. How many whole numbers between 1 and 1000 are there which do not contain the digit 1?

Answer: _____

8. Ernie is driving from Waterloo to Toronto at a speed of 60 km/h. One hour after he leaves, he realizes that he only has enough fuel to drive 40 more kilometres. He calls his friend Bert in Waterloo, who immediately loads his car with containers of fuel and drives to catch up with Ernie, who is still driving at the same speed despite being low on fuel. How fast (in km/h) does Bert have to drive to catch up with Ernie at the exact instant he runs out of fuel?

Answer: _____