RAMC 2025

Elementary I Invitational Round

- **SCORING:** The questions in this round are all worth 1 point each, for a total of 10 points.
- This round contains 10 questions to be solved in 30 minutes. All answers are integers.
- No computational aids are permitted other than scratch paper, graph paper, and a pen/pencil. No calculators of any kind are allowed.
- Fill out your information, and sign/initial the honor code on the answer sheet provided.
- If you believe there is an error on the test, submit a challenge to the proctors. Please include your name, level (E1/E2/MS/HS), and your solution to the problem with explanation.

Do not flip the page until the proctor begins the round!

1. A cake recipe takes 2 eggs and 9 cups of flour. Jane has 12 eggs and x cups of flour. Eddy has y eggs and 63 cups of flour. If both Jane and Eddy have exactly what it needs to create cakes and have nothing left in excess, what is $x + y$?

2. Joshua is thinking of a number. He doubles it, adds 15, then divides by 3 and gets 21. What was the original number?

3. Alex, Ben, and Chloe order a pizza with 13 slices. Alex eats twice as many slices as Ben. Chloe eats one more slice than Ben. How many slices of pizza did Alex and Chloe have in total?

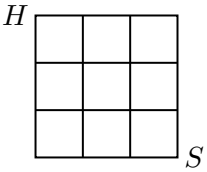
4. Magnus has \$60. He spends $\frac{1}{3}$ of it on a book, $\frac{1}{4}$ of the remaining money on water, and keeps the rest. How many dollars does he have left?

5. Larsen's rectangular garden is 16 feet long and 12 feet wide. If his landscaper, Fabiano, increases both the length and width by 25%, what is the new area of the garden in square feet?

6. Albert can swim 10 miles a day upstream on a river, but at night, he will get tired and simply float 4 miles downstream. After how many days will it take him to reach a dam 55 miles upstream?

7. Morozevich has 5 different books and wants to put them on his shelf. Two of them are his favorite books. He insists that these two must sit together, because they're best friends. How many ways can Morozevich arrange all 5 books on the shelf without separating his favorite duo?

8. Alekhine's house H sits at the very top left of a 3×3 grid. He wants to reach the supermarket S at the bottom-right corner by only moving right or down along the grid lines. (H and S are on the grid lines). How many different paths are possible?



9. I am thinking about a three digit number. All three digits are different, the sum of the digits is 15, the number is divisible by 3, and the tens digit is twice the ones digit. What is the smallest number I could be thinking of?

10. A chessboard has 8 rows and 8 columns of small squares. In addition to the 64 smallest 1×1 squares, the board also has larger squares made by tracing the grid lines. How many total squares of all sizes are there on the chessboard?