

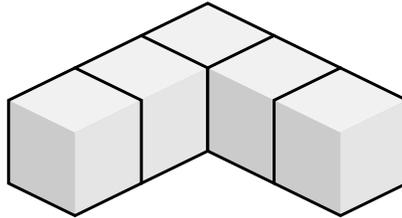
RAMC 2021

Elementary I Team Round

- **SCORING:** The first 5 questions are worth 2 points each, and last 5 questions are worth 3 points each.
- This round contains 10 questions to be solved in 25 minutes. Problems towards the end tend to be more difficult than problems toward the beginning.
- No computational aids are permitted other than scratch paper, graph paper, and a pen/pencil. No calculators of any kind are allowed.
- All answers are integers. When submitting answers, do not add additional characters (such as spaces or units) beyond pure numerical digits, with the exception of a minus (-) symbol when needed.
- If you believe there is an error on the test, submit a challenge to rochestermathclub@gmail.com. Please include your name, level (Elem I/II, MS, HS), and explanation of the problem and your solution.

Take a moment to check that your information is entered correctly!

1. I leave the florist with 7 flowers. Someone outside hands me 135 more flowers. In return, I gave them 47 flowers. Now, how many flowers do I have?
2. Christine builds a structure with cubes, as shown. She will paint the entire structure blue, including the bottom. How many cube faces will be painted blue?

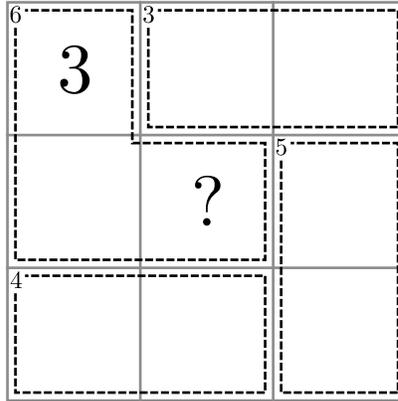


3. Joey and Joe need to fix 5 cars that have come to their Jacksonville Repair Shop. Each car is a different model, meaning that each has a different repair time. The times needed to fix each individual car are 60 minutes, 75 minutes, 45 minutes, 10 minutes, and 80 minutes. Both Joey and Joe only work on one car at a time but can not work on the same car together. However, they can work on different cars at the same time. What is the least amount of minutes that it will take them to fix all 5 cars?
4. A line of symmetry of the snowflake is shown. How many total lines of symmetry does the snowflake have?

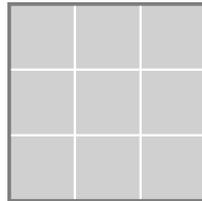


5. Denny and Jenny start jogging from the same point. Denny jogs 2 miles west, 1 mile south, 1 mile west, and finally 3 miles north. Jenny jogs 1 mile north, 2 miles east, and finally 1 mile north. Find the distance in miles between Denny and Jenny.
6. The captain of a Brazilian ship must choose 3 members to form his dive crew. How many different crews can he form if he has 5 members to choose from?

7. The square shown below must be filled in such a way that each of the digits 1, 2, and 3 appear in each row and in each column. Numbers inside the enclosed areas surrounded by dotted lines must sum to the number indicated on that line. What is the number is represented by the question mark?



8. Let n be the sum of the first 1000 positive integers. Which choice best describes n ?
1. n is odd
 2. n is even
9. Leo wants to replace some of the square patches in his 9-patch quilt block with a blue fabric. Currently, all the patches in his quilt block are gray fabric. In how many ways can he replace 4 of the patches so that no two of the blue patches have sides that are touching each other?



10. The Rochester Clock Tower casts a 30-foot shadow. At the same time, a light post casts a 60-inch shadow. The height of the light post is 12 feet. Find the height of the clock tower, in feet.