
MATHCOUNTS

■ **Chapter Competition** ■
Practice Test 5
Target Round Problems

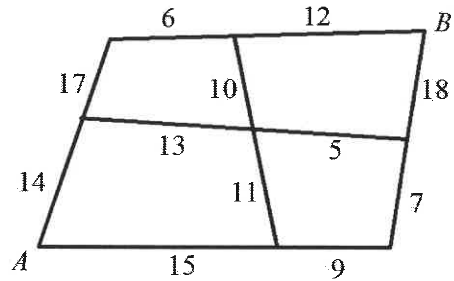
Name _____

**DO NOT BEGIN UNTIL YOU ARE
INSTRUCTED TO DO SO.**

This round of the competition consists of eight problems, which will be presented in pairs. Work on one pair of problems will be completed and answers will be collected before the next pair is distributed. The time limit for each pair of problems is six minutes. The first pair of problems is on the other side of this sheet. When told to do so, turn the page over and begin working. Record your final answer in the designated space on the problem sheet. All answers must be complete, legible and simplified to lowest terms. This round assumes the use of calculators, and calculations may also be done on scratch paper, but no other aids are allowed.

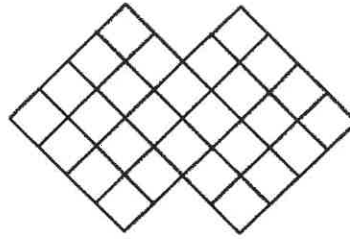
Total Correct	Scorer's Initials

1. In the maze below, a player may only move along the line segments. The number in each line segment indicates the number of hours needed to travel through the distance of the segment. What is the shortest time need to go from A to B ?

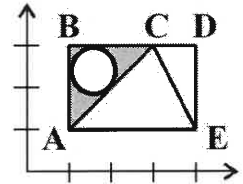


2. A cup of water is added to a container of salt water solution. The salt content (concentration) is 15% after the addition. The same amount of water is added again to the container. Now the salt content is 12% of the solution in the container. Find the original salt content of the solution in the container.

3. How many squares are there in the figure below?

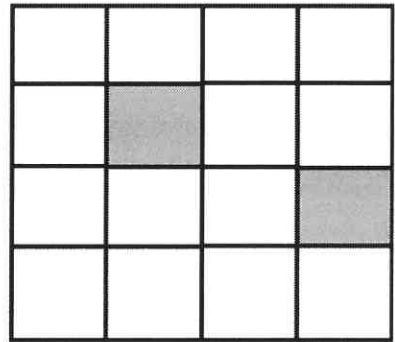


4. In the figure below, side AE of rectangle $ABDE$ is parallel to the x -axis, and side BD contains the point C . The vertices of triangle ACE are $A(1, 1)$, $C(3, 3)$ and $E(4, 1)$. What is the ratio of the area of the shaded regions to the area of triangle ACE ? Express your answer as a decimal to the nearest hundredth.

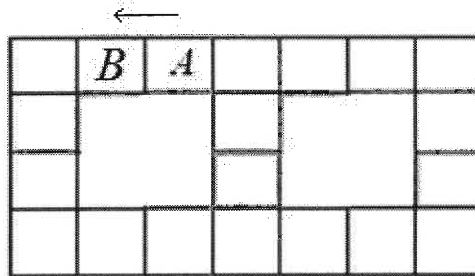
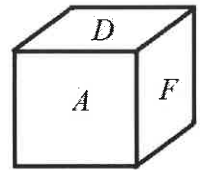


5. The geometric mean of A , B and C is 12. The value of A is four times the value of B , and the value of B is four times the value of C . What is the value of C ?

6. One 5×5 grid of squares with two shaded squares is given. How many different rectangles bounded by the gridlines do not contain the shaded square?



7. A cube is labeled one of the letters of A , B , C , D , E , and F on each of its six faces. A is on the opposite side of C , B is on the opposite side of D , and E is on the opposite side of F . The cube is landing on one of the squares with the letter A . Now the cube is rolling along the edges as shown and landing on each of the twenty squares exactly once without slipping. What is the letter landing on the last square?



8. How many continuous paths from A to C , along segments of the figure, do not revisit any of the segments?

