MATHCOUNTS®

2025 Chapter Competition

Target Round Problems 1–8

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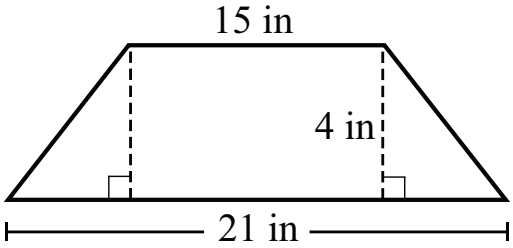
Name _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

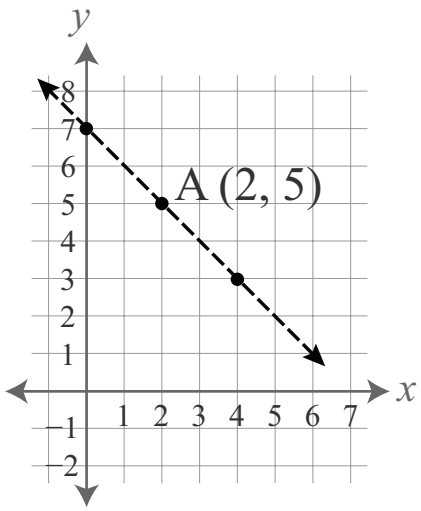
This section of the competition consists of eight problems, which will be presented in pairs. Work on one pair of problems will be completed and answers will be collected before the next pair is distributed. The time limit for each pair of problems is six minutes. The first pair of problems is on the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

1. _____ While practicing for MATHCOUNTS, Eli attempted to add the first ten positive integers, accidentally left one out and ended up with a perfect square. Which number did Eli leave out?

2. _____ inches An isosceles trapezoid has bases of length 15 inches and 21 inches and a height of 4 inches. What is the perimeter of this trapezoid?



3. _____ Two perpendicular lines intersect at the point A(2, 5). If the y-intercept of one of the lines is 7, what is the y-intercept of the other line?



4. _____ Amanda is thinking of a positive integer. The sum of the distinct prime factors of her integer is 10 and her integer is less than 100. What is the sum of the possible values of Amanda's integer?

5. integers How many integers x satisfy the inequality $|x + 2| \leq 6$?

6. _____ What is the sum of the three smallest positive integers that are both a multiple of 5 and also 1 more than a multiple of 7?

7. _____ A *triangular number* is a positive integer of the form $1 + 2 + 3 + \ldots + n$ for some positive integer n. What is the positive difference between the 8th triangular number and the 6th triangular number?

8. _____ units^2 An equilateral triangle has one vertex on the positive x-axis, one vertex on the positive y-axis and one vertex at (20, 25). What is the area of the triangle in square units? Express your answer as a decimal to the nearest hundredth.