0
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MATHCOUNTS®

2017
■ Chapter Competition ■
Target Round
Problems 1 & 2

Name _____

School _____

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.

Problem 1	Problem 2	Scorer's Initials

1. _____ units^2 What is the area, in square units, of the rectangle with vertices A(0, 0), B(0, 3), C(2, 3) and D(2, 0)?

2. _____ What is the greatest possible absolute difference between any two values of the five expressions shown? Express your answer as a decimal to the nearest thousandth.

$(0.5)^3$

$(0.3)^3$

$\dfrac{3^5}{5^3}$

0.5×0.3

$0.3 \div 0.5$

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MATHCOUNTS®

2017
■ Chapter Competition ■
Target Round
Problems 3 & 4

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Problem 3	Problem 4	Scorer's Initials

3. _____ tickets At a high school football game, 139 tickets were sold. Adult tickets sold for $13.50 each, and student tickets sold for $8.50 each. If ticket sales totaled $1576.50, how many adult tickets were sold?

4. _____ A data set of four positive integers has a mean of 5, a median of 4 and a mode of 2. What's the greatest integer in this set?

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MATHCOUNTS®

2017
■ Chapter Competition ■
Target Round
Problems 5 & 6

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Problem 5	Problem 6	Scorer's Initials

5. _____ pounds

A bundle of 25 one-dollar bills weighs $\frac{9}{10}$ of an ounce. How many **pounds** would 4000 one-dollar bills weigh?

6. _____

All elements of the sequence a, b, c, d, 6 are positive integers, and $a > b$. Each of the last three terms is the average of the previous two terms. What is the value of a?

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MATHCOUNTS®

2017
■ Chapter Competition ■
Target Round
Problems 7 & 8

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Problem 7	Problem 8	Scorer's Initials

7. _____ ft/s

Three-fifths of the way up a hill, Jack and Jill realized that they had forgotten their bucket. Jill continued up the hill, while Jack went back down the hill to get the bucket. Two minutes after turning back, Jack reached the bottom of the hill at the exact same time that Jill reached the top. If the total distance from the bottom to the top of the hill is 1260 feet, what is the absolute difference in Jack's downhill speed and Jill's uphill speed, in feet per second? Express your answer as a decimal to the nearest tenth.

8. _____

Twenty-five chips, each marked with a different integer from 1 through 25, are placed in a jar. A student draws a chip from the jar and tells everyone the number. The chip is then returned to the jar. Nine more students do the same thing. What is the probability that at least two of the ten students draw the same chip? Express your answer as a decimal to the nearest hundredth.