MATHCOUNTS

1992-93

■ **Chapter Competition** ■

Target Round

Questions 1 and 2

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of eight problems. They will be presented to you in pairs. Work on one pair of the questions will be completed and answers will be collected before the next pair is distributed. The time limit for each set fo two 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 read silently as the problems are read aloud. Pencils are to be down while the problems are being read. When instructed to begin, pick up your pencil and begin working. Record your final answer in the designated space on the question sheet. All answers must be complete, legible, and simplified to lowest terms. This round assumes the use of a calculator, and calculations may also be done on scratch paper, but no other aids are allowed. If you complete the questions before time is called, use the time remaining to check your answers.

Total Correct	Scorer's Initials

MATHCOUNTS is a cooperative project of the National Society of Professional Engineers, the CNA Insurance Companies, the Cray Research Foundation, the General Motors Foundation, Texas Instruments Incorporated, the National Council of Teachers of Mathematics, and the National Aeronautics and Space Administration.

1. A 50 lb. block of cheese is cut into $1\frac{1}{4}$ lb. blocks. Each small block is sold for \$4.25. What is the total selling price, in dollars, for the 50 lb. block of cheese?

1. _____

2. A circle is circumscribed around a square and another circle is inscribed in the same square. Find the ratio of the area of the smaller circle to the area of the larger circle. Express your answer as a common fraction.

2. _____

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Target Round

Questions 3 and 4

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3. Radio stations use three or four letters for their call-letters. The first letter must be a W or a K. How many different call-letter strings are possible if no letter may be repeated within a string?

3. _____

4. Jim wants to buy a video camera that sells for $899.95. If he saves 1 cent on the first day of the year, 2 cents on the second day, 3 cents on the third day, and so on, for all 365 days of the year, how many dollars short of the camera price will he be at the end of the year?

4. _____

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Questions 5 and 6

Name _____

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5. Harold surveyed the boys in his class to find how many brothers they had. The results are in the table below: 5. _____

STUDENT	BROTHERS
Louis	4
Sam	1
Fred	3
Jim	6
Danny	6
Perry	7

What is the positive difference between the median and the mean of the data? Express your answer as a decimal to the nearest tenth.

6. Nine children are standing in a circle. John begins the count with "one." Gene, beside him, says "two," and the remaining children continue around the circle counting "three," "four," "one," "two," "three," "four," . . . . Each child who calls out "four" drops from the circle and the counting pattern continues. How many times will Gene call out a number before he says "four." 6. _____

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Target Round

Questions 7 and 8

Name _____

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7. Suppose $c+d=3$, $d+e=4$, and $c+e=8$. Find cde. Express your answer rounded to the nearest integer. 7. _____

8. Ping pong balls are stacked in a pyramid with a square base and with one ball in the top layer. Each ping pong rests on four below it except in the base. How many ping pong balls are needed to build a tower 10 layers high? 8. _____