MATHCOUNTS

1990-91

■ Chapter Competition ■

Target Round

Questions 1 and 2

Name _____

School _____

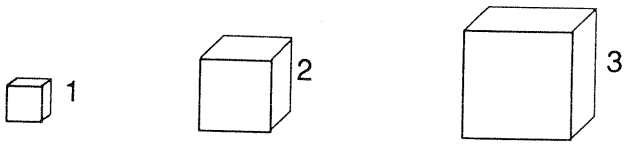
DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the contest 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 of 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. Calculators are permitted during this round, 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, the National Council of Teachers of Mathematics, and the National Aeronautics and Space Administration.

1. The cubes in the diagram have sides of 1, 2 and 3, respectively. If the pattern continues, what will be the sum of the volumes of the first 100 cubes in the sequence? Express your answer in cubic units. 1. _____



2. Each time a sound wave bounces off a reflector it loses 20% of its strength. What percent of its original strength has it lost after 3 reflections? Express your answer as a decimal percent. 2. _____

MATHCOUNTS

1990-91

■ Chapter Competition ■

Target Round

Questions 3 and 4

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Total Correct	Scorer's Initials

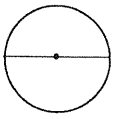
MATHCOUNTS is a cooperative project of the National Society of Professional Engineers, the CNA Insurance Companies, the Cray Research Foundation, the General Motors Foundation, the National Council of Teachers of Mathematics, and the National Aeronautics and Space Administration.

3. A clerk mistakenly reversed the two digits in the price of a comic book, overcharging the customer 27 cents. If the sum of the digits is 11, what was the correct price, in cents, of the comic book ?

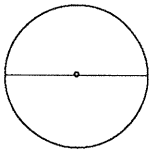
3. _____

4. At Joe's Pizza a 16-inch-diameter pizza and a 12-inch-diameter pizza cost the same per square inch of top surface area. If the cost of a large pizza is $9.60, what is the cost, in dollars, of the smaller pizza?

4. _____



Small ?



Large $9.60

MATHCOUNTS

1990-91

■ Chapter Competition ■

Target Round

Questions 5 and 6

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

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, the National Council of Teachers of Mathematics, and the National Aeronautics and Space Administration.

5. How many ways can change be made for a quarter using standard U.S. coins? 5. _____

6. Bob has X dollars now. If Pat gives Bob a dollar, Bob will have twice as many dollars as Pat. If Bob gave Pat a dollar instead, they will both have the same number of dollars. What is the value of X? 6. _____

MATHCOUNTS

1990-91

■ Chapter Competition ■

Target Round

Questions 7 and 8

Name _____

School _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

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, the National Council of Teachers of Mathematics, and the National Aeronautics and Space Administration.

7. What is the greatest three-digit number divisible by both 7 and 8? 7._____

8. Two sides of a right triangle have the lengths 4 and 5. What is the product of the possible lengths of the third side? Express the product as a decimal rounded to the nearest tenth. 8._____