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# MATHCOUNTS

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1991-92

■ Chapter Competition ■

Target Round

Questions 1 and 2

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Name \_\_\_\_\_

School \_\_\_\_\_

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

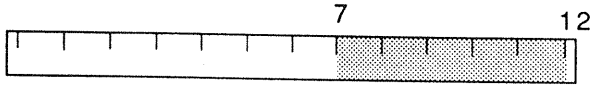
This section of the contest consists of eight problems. They will be presented to you in pairs. Work on one pair of the questions will be completed and answers will be collected before the next pair is distributed. The time limit for each set of two problems is six minutes. The first pair of problems 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. 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.

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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. On a ruler, the distance between the 7-inch and 12-inch marks is to be divided into two parts so that the ratio of the left segment to the right segment is 3:5. At which location on the ruler should the division be made? Express your answer as a mixed number.



1. \_\_\_\_\_

2. Seven consecutive integers have a product of 32,432,400. What is the largest of the seven integers?

2. \_\_\_\_\_

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1991-92

■ Chapter Competition ■

Target Round

Questions 3 and 4

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Name \_\_\_\_\_

School \_\_\_\_\_

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3. What is the first year in the twenty-first century that is a prime number? 3. \_\_\_\_\_

4. What is the largest even three-digit number that can be expressed as the product of three distinct primes? 4. \_\_\_\_\_

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# MATHCOUNTS

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1991-92

■ Chapter Competition ■

Target Round

Questions 5 and 6

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Name \_\_\_\_\_

School \_\_\_\_\_

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5. If 15% of all Americans over 40 years of age have green eyes, and if 40% of all Americans are over 40 years of age, what percent of all Americans are over 40 years of age and do NOT have green eyes?

5. \_\_\_\_\_

6. The bacteria in a jar triple every 20 seconds. After three minutes, there are 275,562 bacteria in the jar. How many were in the jar at the beginning of the experiment?

6. \_\_\_\_\_

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# MATHCOUNTS

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1991-92

■ Chapter Competition ■

Target Round

Questions 7 and 8

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Name \_\_\_\_\_

School \_\_\_\_\_

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7. Consider the possible arrangements of the letters in the word "MOON". How many begin with a vowel?

7. \_\_\_\_\_

8. What is the least positive integer that satisfies the following conditions?

8. \_\_\_\_\_

- a) When divided by 2, the remainder is 1.
- b) When divided by 3, the remainder is 2.
- c) When divided by 4, the remainder is 3.
- d) When divided by 5, the remainder is 4.