
MATHCOUNTS

1995-96

■ State Competition ■

Target Round

Problems 1 and 2

Name _____

School _____

Chapter _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO

This round of the competition consists of eight problems. They will be presented to you in pairs. Work on one pair of the problems 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 problem sheet. All answers must be complete, legible, and simplified to lowest terms. This round assumes the use of calculators, and calculations may also be done on scratch paper, but no other aids are allowed. If you complete the problems before time is called, use the time remaining to check your answers.

Total Correct	Scorer's Initials

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1. Angela attached numbers to the new lockers at the middle school. She used one stick-on number for each digit in the locker number. How many 5's did she use to number lockers 1 through 500 inclusive?

1. _____

2. Doug has two watches, one of which gains 1 second per hour and the other of which loses 6 seconds every 24 hours. He sets both to the correct time at 9:00pm. How many hours will pass before the positive difference in the times shown is 2 hours?

2. _____

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Problems 3 and 4

Name _____

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3. A cowboy agreed to work for one year for \$19,200 plus a horse. He quit after 7 months and was paid \$10,450 plus a horse. How many dollars was the horse worth, if the paid salary reflects the fair proportion of his yearly salary?

3. _____

4. A number can be written in the form $(m + 11)(n + 22)$, where m and n are two-digit numbers created by using each of the digits 2, 3, 4 and 5 exactly once. What is the smallest such number?

4. _____

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Target Round

Problems 5 and 6

Name _____

School _____

Chapter _____

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5. A pair of dice must be rolled until a 7 occurs. What is the probability that a 7 is obtained on the fifth toss and not before? Express your answer as a decimal to the nearest hundredth.

5. _____

6. Find the smallest integer $n > 1$ so that the units digit of d^n is the same as the units digit of d for all positive integers d .

6. _____

MATHCOUNTS

1995-96

■ State Competition ■

Target Round

Problems 7 and 8

Name _____

School _____

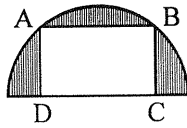
Chapter _____

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7. Rectangle $ABCD$, with $AB = 2BC$, is inscribed in a semicircle of radius 5 m. How many square meters, to the nearest whole number, are in the area of the shaded region?



7. _____

8. Cleo used $19¢$ stamps and $29¢$ stamps to mail a package. She spent exactly \$5.88 (there is no tax on stamps). How many $29¢$ stamps did Cleo buy?

8. _____