MATHCOUNTS®

2010
■ School Competition ■
Target Round
Problems 1 and 2

Name _____

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. Record only final answers in the designated blanks 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.

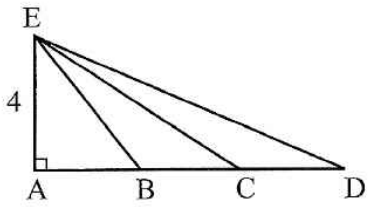
Total Correct	Scorer's Initials

1. At a toy factory, each worker assembles one toy at a time and can assemble a total of 48 toys in 2 hours. At that rate, how many toys can 4 workers assemble in 3 hours?

1. _____ toys

2. In right triangle EAD with right angle at A, AE = 4 units, AB = BC = CD and the area of triangle ABE = 6 sq units. What is the length of segment CE? Express your answer as a decimal to the nearest tenth.

2. _____ units



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2010
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Target Round
Problems 3 and 4

Name _____

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Total Correct	Scorer's Initials

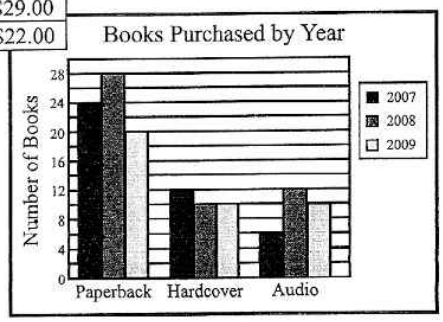
3. Four children are arguing over a broken toy. Ali says Barbara broke it. Barbara says Tyler broke it. Tyler and Jessica say they do not know who broke it. The child who broke the toy is aware that he/she did so and only the guilty child is not telling the truth. Who broke the toy?

3. _____

4. Mrs. Jacobi is a book lover who purchases books throughout the year. The chart shows the average prices she paid for the different types of books she purchased during a three-year period. The graph shows how many of each type of book Mrs. Jacobi purchased during the same three-year period. What is the percent increase in the amount of money Mrs. Jacobi spent on books in 2009 compared to 2007? Express your answer to the nearest whole percent.

4. _____ %

Year	Paperback	Hardcover	Audio
2007	\$10.00	\$24.00	\$18.00
2008	\$12.00	\$26.00	\$29.00
2009	\$18.00	\$20.00	\$22.00



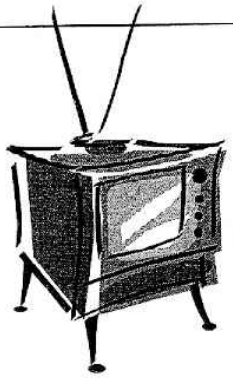
MATHCOUNTS®

2010
■ School Competition ■
Target Round
Problems 5 and 6

Name _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Total Correct	Scorer's Initials

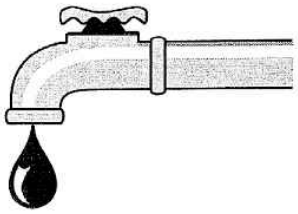


5. The entertainment portion of a 30-minute television show lasted four minutes more than four times the number of minutes devoted to advertising. How many minutes of entertainment did the show have? Express your answer as a decimal to the nearest tenth.

5. _____ minutes

6. A faucet at Mr. Leaky's house drips at the rate of one drop every 2 seconds. Mr. Leaky determined that it takes 5750 drops to fill a 1-liter bottle. If the water always drips at a constant rate, how many liters of water drip from this faucet during the year 2010? Express your answer to the nearest whole number.

6. _____ liters



MATHCOUNTS®

2010
■ School Competition ■
Target Round
Problems 7 and 8

Name _____

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

Total Correct	Scorer's Initials

7. Two distinct integers, m and n, are chosen from the set $\{1, 2, 3, 4, \ldots, 2009\}$. What is the maximum possible value of $(2m + n) \div (m - 2n)$?

7. _____

8. Marco's speed riding up a hill is 40% of his speed riding down the hill. It takes him two hours longer to ride up the hill than it takes him to ride down the hill. How long, in hours, does it take him to ride down the hill? Express your answer as a common fraction.

8. _____ hours