MATHCOUNTS
Target Round
1996-1997

1. Rosita is saving her money to buy a pair of roller blades which cost $135, including tax. She earns $14.50 per week from her paper route, $5 of which she must use to buy lunch each week, and the rest of which she saves. What is the fewest number of weeks she must work to save enough money to buy the roller blades? 1._____

2. Kade had two one-quart containers. One was half full of blue sand. The other was one-quarter full of blue sand. He also had a gallon jug of yellow sand which was half empty. He poured all of the blue sand into the gallon jug which contained the yellow sand. What fractional part of the sand in the yellow jug is blue? 2._____

3. A group of 49 people has a mean income of exactly $25,000. Given that one new person with an income of $62,000 is included in the group, by how many dollars does the group's mean income increase? 3._____

4. One day I found a receipt from my grandfather's store. The bill was faded so that I couldn't read the price of the gadgets at all, and I could only read 3 of the 5 digits in the total. The bill showed the following: 4._____

   72 gadgets at $_._ _ each = $ _ 74.5_.

   How many dollars did one gadget cost? Express your answer as a decimal to two decimal places.

5. At Gauss University, 84% of all athletes are honor students and 4% of all honor students are athletes. Given that 16 athletes are <u>not</u> honor students, how many honor students are <u>not</u> athletes? 5._____

6. What is the sum of the numbers that are two more than their reciprocals? 6._____

7. The least common multiple of two numbers is $2^3 \cdot 3^4 \cdot 5 \cdot 7$. The greatest common divisor of the same two numbers is $2 \cdot 3 \cdot 5$. One of the numbers is 210. What is the other? 7._____

8. The side length of a square ABCD is 8 cm. Points M, N, P, and Q are the midpoints of sides AB, BC, CD, and DA respectively. How many centimeters are in the sum of the lengths of the diagonals of QMBNPD? Express your answer as a decimal to the nearest tenth. 8._____