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# MATHCOUNTS®

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2006

■ School Competition ■  
Sprint Round  
Problems 1–30

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Name \_\_\_\_\_

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

This section of the competition consists of 30 problems. You will have 40 minutes to complete all the problems. You are not allowed to use calculators, books or other aids during this round. Calculations may be done on scratch paper. All answers must be complete, legible and simplified to lowest terms. Record only final answers in the blanks in the right-hand column of the competition booklet. If you complete the problems before time is called, use the remaining time to check your answers.

In each written round of the competition, the required unit for the answer is included in the answer blank. The plural form of the unit is always used, even if the answer appears to require the singular form of the unit. The unit provided in the answer blank is the only form of the answer that will be accepted.

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Total Correct	Scorer's Initials

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1. What is the value of  $5 \times 5 \times 0 + 5 + 5 + 5$ ?

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

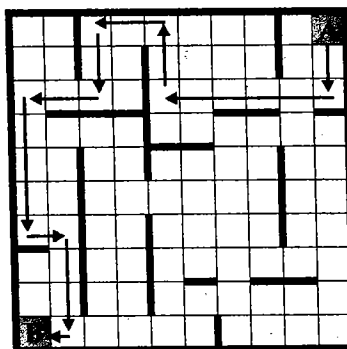
2. Auston is 60 inches tall. Using the conversion 1 inch = 2.54 cm, how tall is Auston in centimeters? Express your answer as a decimal to the nearest tenth.

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

3. Julio had four markers and three pencils. He bought the markers for an average of \$0.75 each and the pencils for an average of \$0.50 each. How much did he spend to purchase all seven of these items?

3. \$ \_\_\_\_\_

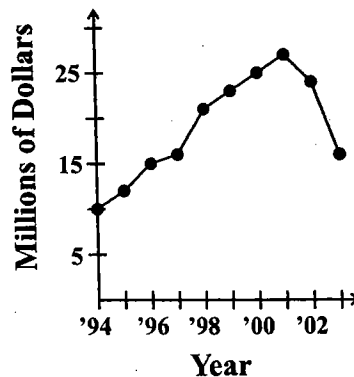
4. In the maze to the right, a move is either horizontal or vertical in a single direction. Each move ends when you reach a barrier or the edge of the grid, where you must turn 90 degrees in either direction and then start your next move. You must always remain within the grid. The thicker lines indicate barriers or edges. The



10 moves of one possible route from square A to square B are shown with arrows. What is the least number of moves needed for a route from square A to square B?

4. \_\_\_\_\_ moves

5. The points on this graph show the end-of-year sales amounts for each year. During what year after 1994 did sales increase the most number of dollars?



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

6. Terry needs at least four square feet of floor space per bird in his chicken coop. Terry plans to build a 30-foot by 20-foot chicken coop. What is the maximum number of chickens he can house?

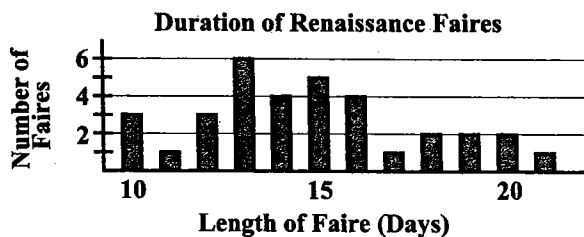
6. \_\_\_\_\_ chickens

7. Marian wishes to buy a new computer that will cost her \$300. She receives \$5 per hour for watching her younger brother and \$4 per hour for helping her mother with chores. Each week she watches her brother for four hours and helps her mother with chores for 10 hours. How many full weeks must she work to earn enough money to buy the computer?

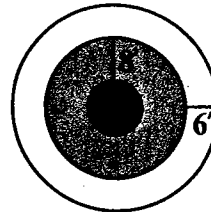
7. \_\_\_\_\_ full weeks

8. Renaissance faires are festivals where participants dress, talk and act as if they are living in the 1500s. The graph shows the number of days various faires run during their season. For example, three faires run for exactly 10 days. What is the total number of faires that run more than 14 days?

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



9. As shown in the figure to the right, a circular park consists of an outer-ring path for walkers (white) and a ring-shaped flower garden (gray) surrounding a central circular fountain (black). The walking path is six feet wide in all places, the garden ring is eight feet wide in all places, and the fountain has a diameter of 10 feet. What is the diameter of the circle that is the outer boundary of the walking path?



9. \_\_\_\_\_ feet

10. What is the probability that a positive integer less than or equal to 24 is a factor of 24? Express your answer as a common fraction.

10. \_\_\_\_\_

11. The measures of the three interior angles of a triangle are  $50^\circ$ ,  $55^\circ$  and  $x^\circ$ . What is the degree measure of the largest interior angle of this triangle?

11. \_\_\_\_\_ degrees

12. The U.S. produces about 5.5 million tons of apples each year. Of the total, 20% is mixed with other products, and the remainder is split equally between apple juice and fresh apple sales. How many million tons of apples are used for apple juice? Express your answer as a decimal to the nearest tenth.

12. \_\_\_\_\_ million tons

