MATHCOUNTS®

2006
■ School Competition ■
Team Round
Problems 1–10

DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO.

This section of the competition consists of ten problems which the team has 20 minutes to complete. Team members may work together in any way to solve the problems. Team members may talk during this section of the competition. This round assumes the use of calculators, and calculations may also be done on scratch paper, but no other aids are allowed. All answers must be complete, legible and simplified to lowest terms. The team captain must record the team's official answers on his/her own problem sheet, which is the only sheet that will be scored. If the team completes the problems before time is called, use the remaining time to check your answers.

Team Members _____ , Captain

_____

_____

_____

Total Correct	Scorer's Initials

1. In a recent wedding, the groom's age was fifteen years more than half the bride's age. If their ages added to 51 years, how old was the groom?

1. _____ years

2. John surveyed a group of people about their knowledge of rats. To the nearest tenth of a percent, he found that 86.8% of the people surveyed thought rats carried diseases. Of the people who thought rats carried diseases, 45.7% said that rats frequently carried rabies. Since rats do not frequently carry rabies, these 21 people were mistaken. How many total people did John survey?

2. _____ people

3. How many whole cubes that are two inches along each edge fit into a rectangular box measuring one foot by 14 inches by 16 inches on the inside?

3. _____ cubes

4. Twenty tiles are numbered 1 through 20 and are placed into box A. Twenty other tiles numbered 11 through 30 are placed into box B. One tile is randomly drawn from each box. What is the probability that the tile from box A is less than 15 and the tile from box B is even or greater than 25? Express your answer as a common fraction.

4. _____

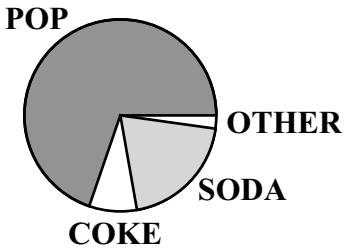
5. The letters of the alphabet are each assigned a random integer value, and H = 10. The value of a word comes from the sum of its letters' values. If MATH is 35 points, TEAM is 42 points and MEET is 38 points, what is the value of A?

5. _____ points

6. A car arrives at an intersection from the east every six minutes, and the first car arrives from this direction at 9:05 a.m. A car arrives from the north every seven minutes, and the first car arrives from that direction at 9 a.m. What is the earliest time after 9 a.m. when cars arrive from both of these directions at the same time?

6. _____ a.m.

7. In Idaho, 472 people were asked what they call soft drinks. The results of the survey are shown in the circle graph. The central angle of the "Pop" sector of the graph is 251˚, to the nearest whole degree. How many of the people surveyed chose "Pop?" Express your answer as a whole number.



7. _____ people

8. The stem-and-leaf plot shows the number of minutes and seconds of one ride on each of the 17 top-rated roller coasters in the world. In the stem-and-leaf plot, 2|20 represents 2 minutes, 20 seconds, which is the same as 140 seconds. What is the median of this data set? Express your answer in seconds.

0	28	28	50			
1	00	02				
2	20	25	35	43	45	
3	00	00	00	30	36	
4	00	00				

8. _____ seconds

9. A jar contains 28 marbles. Half of the marbles are red. Half of the non-red marbles are white and the rest are blue. Todd chose a white marble at random and kept it. What is the probability that when Hosea now draws a marble it will also be white? Express your answer as a common fraction.

9. _____

10. For a give-away at the mall, the color of the entry forms changes every hour on the hour, and once a color has been used, it is not used again that day. To limit the number of entries, a person may not fill out more than one form of any color. Using the table below, what is the maximum number of total entries Sarah and her three friends could have submitted during the day?

10. _____ entries

Who	Arrival Time at Mall	Departure Time from Mall
Sarah	8:50 a.m.	4:02 p.m.
Davie	9:03 a.m.	3:15 p.m.
Zeb	10:52 a.m.	4:10 p.m.
Alishe	12:03 p.m.	4:57 p.m.