



Junior High Team Round 11011

Problems 1-10

Team Members: (Captain) _____

School: _____

Grade: _____

Score: _____

Scorer's Initials: _____

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DO NOT BEGIN UNTIL YOU ARE INSTRUCTED TO DO SO

This round 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 answers on his/her own problem sheet. If the team completes the problems before time is called, use the remaining time to check your answers.

1. A class with 23 students raised \$1458 in the class fundraiser. If one of the students raised \$182, what was the mean amount raised by the other 22 students? 1. _____
2. Ashton Middle School has students in 7th and 8th grades. Out of the total of 900 students, 56% are 8th graders and 48% are girls. If there are 210 girls in 7th grade, what percentage of the 8th grade class are girls? Round your answer to the nearest whole number. 2. _____
3. What is the length of the line segment with endpoints at (-1,4) and (7,14)? Express your answer in simplest radical form. 3. _____
4. In the magic square below, the digits 1 through 9 are placed in the nine squares so that the sums of the values in each row and each column are equal. Each digit is used exactly once. What digit goes in the square marked A? 4. _____

	8	1
A		
2		9

5. A basketball team has 8 guards, 5 forwards and 3 centers. If the team's starting lineup has 2 guards, 2 forwards and 1 center, how many different starting lineups are possible? 5. _____
6. A lawn consists of an annulus (the region between two concentric circles) with inner radius 100 ft and outer radius 180 ft. Trevor can mow the lawn at a rate of 120 ft² per minute. How many hours will it take to mow the entire lawn? Round your answer to the nearest tenth. 6. _____
7. Amber is numbering the pages of a book. If she starts with page one and labels each page in order, what will be the 200th digit that she writes? 7. _____
8. John wants to divide his math team into small groups to work on problems. If the team split into groups of 4, there would be one person left over. If they split into groups of 5 or 6, there would also be one extra person. If John's math team has less than 100 people but more than 10, how many people are on the team? 8. _____
9. The first term in a geometric sequence is 36 and the last term is 32/3. If the sum of all of the terms of this sequence is 260/3, what is the common ratio? Express your answer as a common fraction. 9. _____

10. A goat is tied to one end of an 8 ft rope outside of a 6 ft by 6 ft enclosure. The other end of the rope is tied to one corner of the enclosure. What is the total area, in square feet, that the goat could reach? Give your answer in terms of π .

10. _____

