

“Math is Cool” Championships – 2014-15

Sponsored by:

October 22, 2014

High School Mental Math Contest

Follow along as your proctor reads these instructions to you. Your Mental Math score sheet is on the back.

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by all involved, both competitors and observers. Display of poor sportsmanship may result in disqualification.*
- *Calculators or any other aids may not be used on any portion of this contest.*
- *Unless stated otherwise, all rational, non-integer answers need to be expressed as reduced common fractions except in case problems dealing with money. In the case of problems requiring dollar answers, answer as a decimal rounded to the nearest hundredth (ie, to the nearest cent).*
- *All radicals must be simplified and all denominators must be rationalized.*
- *Units are not necessary as part of your answer unless it is a problem that deals with time and in that case, a.m. or p.m. is required. However, if you choose to use units, they must be correct.*
- *Leave all answers in terms of π where applicable.*
- *Do not round any answers unless stated otherwise.*
- *Record all answers on the colored cover sheets in the answer column only.*
- *Make sure all answer sheets have all the information (name, team number, etc.) at the top of the sheet filled out.*
- *Tests will be scored as a 0 if answers are not recorded on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will be scored as a 0.*

Mental Math – 30 sec per question

8 problems read orally to everyone - Approximately 8% of Individual Score - 25% of team score

*When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. **You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.** Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

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School: _____ Room # _____ Team # _____

Name: _____ Proctor: _____

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	Answer	1 or 0	1 or 0
1			
2			
3			
4			
5			
6			
7			
8			

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#	Problem
1	What is the sum of one squared plus two squared plus three squared plus four squared?
2	What is the maximum number of points a circle could intersect a regular pentagon?
3	What is the sum of the three largest prime numbers less than sixty?
4	What is the area of a square circumscribed about a circle with circumference π ?
5	The mean of six numbers is 100. If the mean of two of them is 50, what is the mean of the other four?
6	What is the probability of getting 1, 2, or 3 heads with four flips of a fair coin?
7	Five points are equally spaced around a circle. In how many ways can three of them be connected to make a scalene triangle?
8	What is the coefficient of x in the product of the quantity x minus 1 times the quantity x minus 2 times the quantity x minus 3?