

"Math Is Cool" Rules — High School Grades

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by all involved (competitors and observers). Display of poor sportsmanship will result in disqualification.*
- *Competitors may not use calculators or any other aids on any portion of this contest.*
- *Unless stated otherwise:*
 - *Express all rational, non-integer answers as reduced common fractions, except in problems dealing with money.*
 - *For problems dealing with money, give the answer as a decimal rounded to the nearest cent.*
 - *For 5th grade and up, all fractions and ratios must be reduced to simplest form, all radicals must be simplified, and all denominators must be rationalized.*
 - *Leave answers in terms of π or other irrational quantities (e.g., $\sqrt{2}$). That is, don't round or approximate.*
- *Units are not necessary as part of your answer unless it is a problem that deals with time, in which case, a.m. or p.m. is required. However, if you choose to use units, they must be correct.*
- *Record all answers on the colored cover sheets in the answer column only.*
- ***Be sure that the name, team number, etc. at the top of every answer sheet has been filled out.***
- *Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will be scored as a 0.*
- *Teams must be in the classrooms on time. Proctors will not wait; late teams will miss out on events in progress.*

MENTAL MATH - 30 seconds/question, 8 problems, ~25% (team) & ~8% (individual) of score

*To avoid disqualification, students may NOT be seated next to anyone from their school. All students in the room will concurrently be asked the same eight questions in this individual test. 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 the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.*

INDIVIDUAL TEST - 35 minutes, 40 problems, ~92% of individual score

When you are prompted to begin, tear off the colored answer sheet and begin testing. No talking during this individual test. You will be given a 5 minute time warning. Correct answers receive 2 points for problems 1-30 and 3 points for 31-40 (in the scaled score).

INDIVIDUAL MULTIPLE CHOICE - 15 minutes, 10 problems, ~20% of team score

*This test is taken individually, but it is part of your team score. When you are prompted to begin, tear off the colored sheet and begin testing. **Since this is a multiple choice test, ONLY a letter response should be indicated as an answer on the answer sheet.** This test is the only test where you will be penalized for incorrect responses. You will receive raw scores of 2 points for a correct letter response, 0 points for leaving an answer blank, and -1 point for an incorrect response. Your team score will be calculated by taking the mean of the top 3 scores from your team.*

TEAM TEST - 15 minutes, 10 problems, ~30% of team score

When you are prompted to begin, tear off the colored sheet, give a copy of the test to each of your team members, and begin testing. Teams may discuss the problems among themselves. The raw score is 1 point per correct answer.

PRESSURE ROUND - 10 minutes, 5 problems, ~10% of team score

When it is time to begin, you will be handed a packet of five problems with a copy for each team member. Two minutes after the start of the test and every two minutes thereafter, the team is expected to submit an answer (even if it is a guess) for one of the problems. The problems may be submitted in any order, but no problem may be submitted more than once. The first problem submitted has a raw point value of 1, the second problem submitted is worth 2 raw points, and so on, with the final problem submitted having a raw point value of 5 points. You must

submit your answers on the colored sheets given to you. If you do not have an answer at the end of a two minute period, you must still submit an answer sheet with an identified problem number on it. Failure to do so will result in loss of points. This event is timed, and you will be given a verbal 5-second warning before the end of each two-minute period and told to hold your answer sheet up in the air. You may keep working as the sheets are collected. If a team answers the same question more than once, only the first answer will be scored and the other attempts will be scored as a 0.

COLLEGE BOWL - up to 10 minutes per round, 10 problems per round, ~10% of team score

1. All competitors must be facing the front of the room in one row, with all spectators behind the competitors.
2. A maximum of ten questions per round will be scored. It is OK for both teams to score the same number of points! The proctor will record points earned on each team's score sheet (which is retained by the proctor).
3. You may use scratch paper & pencil. You may talk with your teammates while arriving at a solution.
4. An electronic College Bowl Apparatus will be used to identify the first team to have an answer.
5. During these rounds, each question will be read twice and a maximum time of 45 seconds after the second reading of the question is completed will be allowed for a team to answer. If a team buzzes in after the second reading and gives an incorrect response, the other team has the remainder of the 45 seconds to respond. A team is allowed only one attempt at buzzing in and answering per question. You may interrupt (buzz in) while a question is being read, however, if you do, the proctor will stop reading, and an immediate response is needed. If the correct response is given, the proctor will proceed to the next question. Otherwise, the question will be re-read for the other team, making sure it has two full readings. If an immediate response is not given after a team buzzes in, their lack of an answer in a timely manner is considered incorrect. In the event that only one team is competing in a round (i.e., one team is absent), the team competing will have a maximum of 30 seconds after the completion of the second reading in which to buzz in. The proctor will give a 5-second time warning.
6. You do not need to wait to be acknowledged by the proctor. However, it would be courteous to do so.
7. If two students from the same team answer at the same time with different answers, the answer will be considered incorrect.
8. If a problem arises with one of the questions, an extra question will be asked to replace that question.
9. If the college bowl event finishes early, everyone must stay in the room for the remaining time.

FINAL SCORES

Individual awards are determined by both the Mental Math and Individual Test scores for each student, with Mental Math contributing 8% and the Individual Test 92% to the scaled individual score. Individual ties are broken based on the following, in this order: total scaled individual points, total number of questions answered correctly on the Individual Test, Mental Math raw score, number of questions correct from Individual Test problems 31-40, number of questions correct from Individual Test questions 16-30, highest numbered single question answered correctly on the Individual Test starting with question 40 and working backwards.

The School score is calculated using the highest score amongst all of the school's team-of-four scores in each event (thus more than one team-of-four may contribute to the score and all students from the school share in the award). The School score is calculated as $2 \cdot (\text{Sum of highest 3 Mental Math scores}) + 2 \cdot (\text{Avg. of Top 3 Ind. Multiple Choice}) + 6 \cdot (\text{Team}) + 2 \cdot (\text{Pressure Round}) + 1 \cdot (\text{College Bowl})$ for approximate event weights of 25%, 20%, 30%, 15%, and 10%, respectively. Team ties are broken based on highest event score in the order of the events, starting with Mental Math. Advancement to Masters is based on the score without the College Bowl component.