"Math is Cool" Championships – 2012-13

Sponsored by:

November 2, 2012

7th & 8th Grade 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 of 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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7th & 8th Grade – November 2, 2012

Mental Math Contest

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#	Problem
1	A hiker can hike 5 miles per day. How many miles can the hiker hike in 4 days?
2	A baby's head is one-fourth of its total body length. If a baby's total body length is 16 inches, what length will its head be, in inches?
3	The sum of two numbers is 18, while the product of the two numbers is 72. What is the smaller of the two numbers?
4	What is the degree measure of each interior angle of a regular nine-sided polygon?
5	Express the decimal as a reduced fraction: zero-point-one-two-five
6	How many distinct positive integer factors does 24 have?
7	A circle has a diameter of 12 inches. If a square has a side length that is equal to the radius of this circle, what is the area, in square inches, of the square?
8	How many times greater is the area of a circle if the circumference of the circle triples?

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7th & 8th Individual Contest

Tear this sheet off and fill out top of answer sheet on following page prior to the start of the test.

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- *Make sure all answer sheets have all the information (name, team number, etc.) at the top of the sheet filled out.*
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- *Blank answer sheets and answer sheets with no name will be scored as a 0.*

INDIVIDUAL TEST - 35 minutes

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When you are prompted to begin, tear off the colored sheet and begin testing. Make sure your name and school are recorded on the answer sheet. The raw score will be 2 points for correct answers to problems 1-30 and 3 points for 31-40. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute time warning.

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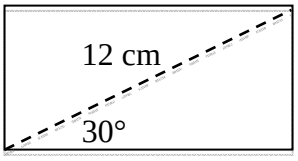
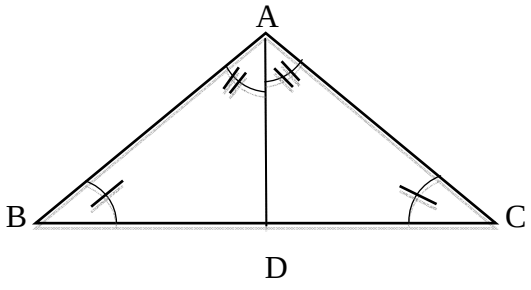
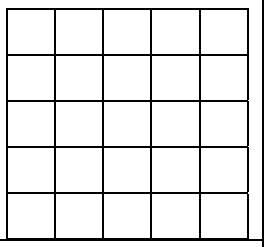
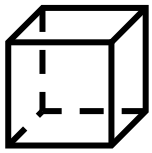
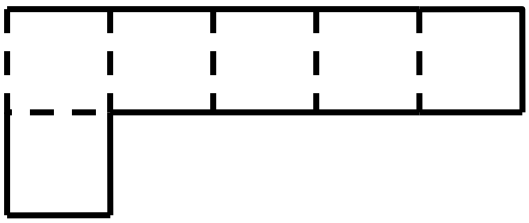
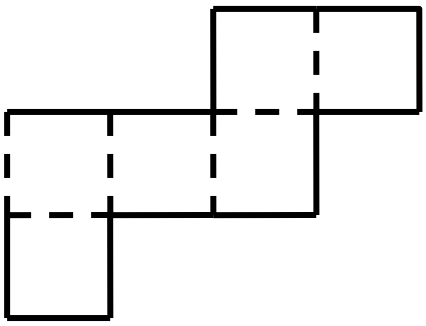
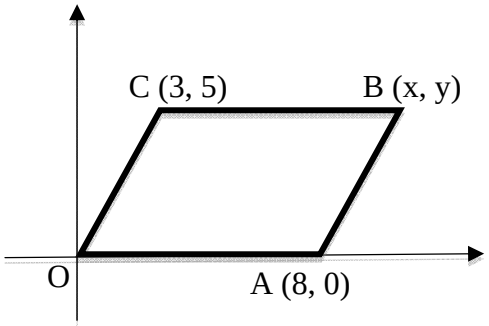
7th & 8th Individual Contest

	Questions 1-30: 2 points each
1	Evaluate: $\|-3\|$
2	What is the largest non-positive number?
3	Write 3,500,000 in scientific notation.
4	What is the missing number in this geometric sequence? 1, 6, 36, _____, 1296
5	What is the slope of the line y = 17x+15?
6	Which fraction is larger? A = sixty-three over one-hundred twenty-four B = twenty-four over fifty
7	Solve for x in this equation: $\frac{9x+4}{3} = 7$
8	Only 1/7 of one percent of the mathletes here today will earn a Ph.D. degree in mathematics. If there are 700 mathletes here today, how many will get a Ph.D. in mathematics?
9	Kim is preparing for a party and needs to set up tables for her guests. Each table is a rectangle and seats 6 guests, 1 on each short end and 2 on each long side. Two tables with their short ends joined together can only seat 10 guests. Kim is going to have one long row of tables, made by joining tables at their short ends. How many tables in all will Kim need to seat herself and 41 guests?
10	Last year I ate 1500 jelly beans. This year I ate 1750 jelly beans. What was the percent increase in the number of jelly beans I ate? Answer as a mixed number percent
11	Is the product of the first n prime numbers (where n>2) always odd, always even, or possibly either?
12	Three angles of a triangle are 3x + 5 degrees, 4x + 6 degrees and 7x + 1 degrees. What is the value of x?
13	Austin averaged 73 points on the 4 drive tests that he took before getting his license. He got a 65, 70, and 75 on the test the first three times, failing the test. What was his 4th (passing) score?

14	Find the area of this rectangle, in square centimeters. 
15	Jay invests $3000 at a fixed annual rate of 3%, compounded annually. After 2 years, how much money will he have? Answer in dollars, to the nearest cent.
16	What is the least common multiple of the greatest common factor of 60 and 105 and the greatest common factor of 72 and 153?
17	How many ways are there to seat 3 students in 4 desks?
18	Lisa has three stacks of stickers. The second stack has $\frac{1}{4}$ more stickers than the first and the third stack has $\frac{1}{5}$ more stickers than the second. How many stickers does the first stack have if there are 555 stickers total?
19	Joe has two coupons he could use in buying a desk that originally sells for $400. One coupon is for $50 off and the other coupon is for 15% off. Using one of these coupons, what is the largest number of dollars Joe could save, compared to the original price?
20	Using quarters, dimes and nickels, how many ways are there to make change for one dollar?
21	What is the slope of the line that goes through the points (1,3) and (-2, 4)
22	Write a 3 digit number using 3 distinct digits. Reverse the digits. What is the maximum positive difference between the two numbers? Zero cannot be used as an end number.
23	What relationship proves that $\triangle ABD$ is congruent to $\triangle ACD$? A. AAS B. SAS C. AAA D. ASA E. SSS 
24	160 acres is an area of land equal to the area of a square that is $\frac{1}{2}$ mile on each side. This summer one of the many fires in the state of Washington grew to 38,400 acres. In square miles, how large was this one fire?

25	Given that $Ax+B=C$, solve for x in terms of A, B, and C.
26	The sum of 4 consecutive even numbers is $4x + 12$ where x is the first number. Write an expression for the last number.
27	Tell whether the reasoning process is deductive or inductive: Ramon noticed that spaghetti had been on the school menu for the past five Wednesdays. Ramon decides that the school always serves spaghetti on Wednesday.
28	What is the shortest possible integer length of the other side of a triangle with side lengths 135 and 73 units?
29	How many different paths are there from the upper left corner to the lower right corner of the figure if movement can only be down or to the right? 
30	Which net makes the following shape? Answer A, B, C, or D.  A)  B  C) Neither A or B D) Both A and B

Challenge Questions: 3 pts each

31	OABC is a parallelogram. Give the location of point B as an ordered pair (x, y). 
32	A square piece of paper is folded in half twice, first from top to bottom and then again from top to bottom. The final piece of folded paper has a perimeter of 50 units. What is the perimeter of the original piece of paper?
33	Assume a ream of 500 sheets of paper is 5 cm thick. If one sheet of paper could be removed and folded in half 20 times, how many **meters** thick (to the nearest meter) would the folded paper be?
34	Billy has built a straight fence 60 feet long, with a post at each end and one every 10 feet. He starts at a randomly selected post and paints it completely. He then selects another unpainted post (not necessarily a post 10 feet away) and completely paints it, then selects another unpainted post, and so forth. When all posts are painted, he stops. What is the maximum distance in feet that Billy could travel while painting the posts?
35	Buttercup, Fruitloop and Stinkeye are scheduled to run a race with probabilities of winning the race of 1/7, 2/13 and 64/91, respectively. Stinkeye went color-blind and was unable to race. What is the probability that Buttercup will win?
36	It takes 5 workers 3 days to do 8 jobs. Assuming all workers work at the same rate and all jobs are equal, how many workers will it take to do 12 jobs in 4 days?
37	Order the numbers from lowest to highest using the four letters: A. -4.6×10^{-9} B. -3×10^{3} C. -9.6×10^{-7} D. 2×10^{4}
38	The number of reps Alex can do lifting watermelons is inversely proportional to the square of the weight of the watermelons. If he can lift a four-pound baby 36 times, how many times can he lift a twelve-pound watermelon?
39	There is a point (3, 2). Reflect that point across a line with the equation $y = x + 1$. What are the new coordinates of the reflected point?
40	In a room are 6 people whose birthdays are randomly distributed. What is the percent probability that at least two of the people share a birthday? Give your answer rounded to the nearest whole percent.

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7th Grade – November 2, 2012

Individual Multiple Choice Contest

Farmer Frank took a load of carrots to market and sold all of them. The carrots were grouped by size (small, medium, and large). Below is a partial table of data. Use the following information to answer questions 1 – 5.

Size	Number of carrots	Total weight in pounds	??	Selling price per pound	Total earned
Small	830	415	8 ounces	10¢	$41.50
Medium	??	1350	1 pound 2 ounces	12¢	??
Large	900	1350	1 pound 8 ounces	??	$189.00

1 What was total amount Farmer Frank earned?

A) $41.50 B) $162.00 C) $189.00 D) $392.50 E) Answer not given.

2 What was the price per pound that Farmer Frank was paid for his large carrots?

A) 10¢ B) 12¢ C) 14¢ D) 16¢ E) Answer not given.

3 What is the best title for the fourth column?

A) Weight of the container B) Average (mean) weight per carrot C) Maximum weight per carrot D) Weight of 100 carrots E) Minimum weight per carrot

4 What is the average price paid per pound for all the carrots, rounded to the nearest whole penny?

A) 10¢ B) 12¢ C) 14¢ D) 16¢ E) Answer not given.

5 How many medium carrots did Farmer Frank take to market?

A) 830 B) 900 C) 1000 D) 1200 E) Answer not given.

6 John-Jacob Jingle-Heimer-Schmitt and his wife Jenny-Jacob Jingle-Heimer- Schmitt are deciding how much of their income they can allocate to buying a new car. They allocate 1/8 of their income to food, 1/6 of their income to utilities, 1/12 of their income to baby supplies, and 1/3 of their income to savings, and have no other expenses. What fraction of their income can they allocate to buying a car?

A) 1/4 B) 1/6 C) 7/24 D) 3/7 E) Answer not given

7 John-Jacob Jingle-Heimer-Schmitt Junior drinks 1 quart of milk every 12 hours. If milk is $4.50 a gallon, how much money will John-Jacob Jingle-Heimer-Schmitt have to spend on milk in a non-leap year?

A) $821.25 B) $1,642.50 C) $3,285.00 D) $1,094.99 E) Answer not given.

8	If it takes Jeremy 18 hours to dig a cubical hole 2 meters on an edge, how many hours would it take him (digging at the same rate) to dig a cubical hole 4 meters on an edge? A) 36 hours B) 72 hours C) 144 hours D) 288 hours E) Answer not given.
9	This contest (with 10 problems) is scored 2 for a correct answer, 0 if the answer is left blank, and -1 if the answer is incorrect. Which of the scores below is impossible to get? A) 13 B) 15 C) 17 D) 19 E) Answer not given.
10	Ford enthusiast Mr. Shelby has a collection of Mustang cars. He has one Mustang car for every year starting in 1965 through the present, 2012. How many Mustang cars does he have? A) 46 B) 47 C) 48 D) 49 E) Answer not given.

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Team Contest

1	Let $A=\pi$, $B=\sqrt{9}$, $C=\frac{10}{3}$, and $D=\left(1.7\right)^2$. Put these four values in order of increasing size (smallest first). Your answer should be 4 letters in the correct order.
2	What is my number if 4 times my number is 3 less than 31?
3	A cherry pudding recipe makes six servings of a dessert with 2012 total calories. One serving of this cherry pudding will be what percent of a 2000-calorie daily diet? Round your answer to the nearest whole percent.
4	What is the sum of all counting numbers that will divide into 24 without remainder?
5	Find the value of: $\left(3+2\right)^2+\left(5-2\right)^2+\left(6+2\right)^2-\left(3+3\right)^2+\left(0+1\right)^2$
6	A trapezoid has a base measuring 6 inches. Its height is equal to the average of the two bases. If its area is 49 square inches, find the length in inches of the other base.
7	What is the smallest multiple of 4 greater than 10, for which the sum of its digits and the product of its digits are both positive multiples of 4?
8	Ann, Ben, Con, Dan, and Evan are standing in line. In how many orders could they be standing if Ann and Ben are next to each other, but Con and Dan are not next to each other?
9	The sum of 15 and its digits is 21, since 15 + 1 + 5 = 21. Find a 4-digit counting number such that the sum of the number and its digits is 4377.
10	Let $R=\frac{P+Q}{2}$ and $P<Q$. For how many values of $R<50$ could P, Q, and R all be prime numbers?

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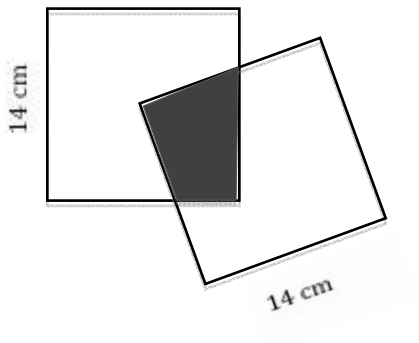
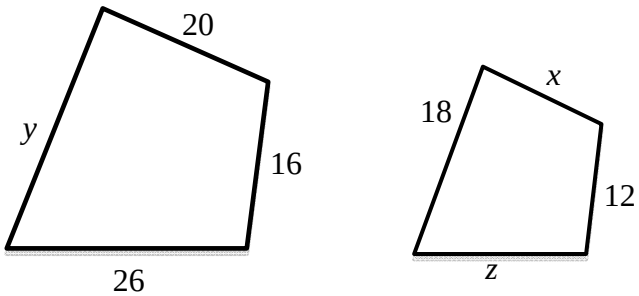
Pressure Round Contest

1	What is the volume in cubic units of a cone with a slant height of 13 units and a radius of 5 units?
2	The probability that it rains is 40% and the probability that you bring your jacket is 60%. In addition, there is a 15% chance that it will snow if it rains (and no chance that it will snow if it doesn't rain). If you don't bring your jacket and it snows, you will contract hypothermia. What is the probability (as a decimal percentage) that you will contract hypothermia?
3	Hugh is building a sidewalk, in the shape of a rectangular prism, that is 3 feet wide, 3 inches thick, and 36 feet long. How many cubic yards of concrete are needed to make the sidewalk?
4	Two squares each with side 14 cm are placed so that a vertex of one lies at the center of the other. Find the area of the shaded region, in square centimeters. 
5	Two similar polygons are shown. Find the sum of the values of x, y, and z. If your answer is not a whole number, give it as a reduced fraction. 

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	In how many orders can six different books be arranged in a row?	720 [ways]
2	What is the sum, in degrees, of the interior angles of a heptagon?	900 [degrees]
3	What is the least common multiple of 36 and 99?	396
4	A bag of M&M's contains 12 red, 18 blue, and 6 green M&M's. If you pick three M&M's at random and without replacement, what is the probability that you will pick a blue, a green, and a red in that order? Answer as a reduced fraction.	18/595
5	The number of diagonals that can be drawn in a certain polygon is 14. What is the sum, in degrees, of the exterior angles of this polygon?	360 [degrees]
6	What is the surface area in square units of a sphere with diameter 8 units?	64 pi [sq. units]
7	James has been trying to get his driver's license for six years. He takes the test every month, plus one extra time in February each year. He has to pay $20 to take the test each time. How much has he spent so far on driver's license tests?	1560 [dollars]
8	The sum of 4 times Susan's age and 7 times Ben's age is 169 years. Ben is 1 year older than twice the age of Susan. How many years old will Susan be 10 years from now?	19 [years]
9	At a school fund-raiser, students charge 10 dollars to wash a car and 20 dollars to wash an SUV. They make $1700 by washing 105 vehicles, all either cars or SUV's. How many SUV's did they wash?	65 [SUV's]
10	Cort bought 2 calculators for $43.19 apiece. He paid with a one-hundred dollar bill. How much, in dollars, will he get back from the cashier?	[$] 13.62

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COLLEGE KNOWLEDGE BOWL ROUND #2 - SET 2

#	Problem	Answer
1	Walt walked 2680 miles across the US. If each of his steps is one and a half feet long, how many steps did Walt take to cross the US?	9,433,600 [steps]
2	What is the area in square units of a rhombus with diagonals of 10 and 8 units?	40
3	Yesterday Emily worked 10 hours at six dollars per hour. How many hours would it take her to earn the same amount of money if she was earning twelve dollars per hour?	5 [hours]
4	Richard and Stacey started dating on July 28th and have a date every day. On what date (month and day) will they have their 100th date?	November 4th or 11-4
5	What is the probability that the roll of two fair six-sided dice yields a sum of five or greater?	5/6
6	Stacey loves the feeling of new socks, so she buys a new $12 pair every day for the first three months of 2012. How many dollars did Stacey spend for these socks?	1092 [dollars]
7	What is the sum of the 5th positive triangular number, the 5th positive square number and the 5th positive even number?	50
8	Mark and Julia are both at home. Mark lives 5 miles west of school and Julia lives 3 miles west of school. At the same time, they each start walking west, away from school. Mark walks at a constant speed of 5 miles per hour, and Julia walks at a constant speed of 7 miles per hour. How many miles away from school will they be when Julia catches up to Mark?	10 [miles]
9	Marcy is painting her bedroom walls, which are 8 feet tall. Her bedroom is a 20-foot by 20-foot rectangle. Each gallon of paint covers 320 square feet. How many gallons of paint does she need, assuming the walls have no doors or windows?	2 [gallons]
10	A pentagon has three angles whose measures are 100 degrees, 120 degrees and 110 degrees. What is the sum in degrees of the other two angles?	210 [degrees]

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	I start with 3 Twitter followers. If I gain 4 Twitter followers the first day and every day thereafter and don't lose any followers, how many followers will I have after 3 consecutive, non-leap years?	4383 [followers]
2	What is the area, in square units, of a triangle with side lengths 12 units, 16 units and 20 units?	96 [square units]
3	What is the volume, in cubic centimeters, of a right circular cone with a radius of 6 centimeters and a height of 9 centimeters?	108 pi [cubic centimeters]
4	George drives his car 4 miles at 8 miles per hour, and then drives another 4 miles at 10 miles per hour. What is his average speed, in miles per hour? Give your answer as a reduced fraction.	80/9
5	Stacey started writing College Bowl questions at 8:00 PM and stopped at 10:40 PM. What is the number of degrees travelled during this time by the minute hand of a clock?	960 [degrees]
6	How many counting numbers between 100 and 200 are divisible by 11?	9 [numbers]
7	Jerry takes two hours to paint a fence by himself. Hiko takes six hours to paint the same fence by himself. How many **minutes** does it take them to paint a fence together?	90 [minutes]
8	Hallie's average score before her final math test was 88. Her average after her final test was 90. Her score on the final test was 98. If each test is weighted the same in calculating the average, what is the total number of math tests she has taken?	5 [tests]
9	When Kara started reading a new novel, she read 15 pages a day for six days. At the end of six days, she had three-eighths of the book left to read. How many total pages are in the book?	144 [pages]
10	A stock market guru bought some shares of stock at $7.42 a share. She paid a transaction fee of $37.10. If she spent a total of $652.96, how many shares of stocks did she buy?	83 [shares]

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COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	What is 2 to the power of 3, plus 2 to the power of 4, plus 3 to the power of 3?	51
2	A right triangle has a hypotenuse of 26 units and a leg of 10 units. How many units long is the other leg?	24 [units]
3	When x equals 3, what is the value of x squared, plus 17 times x, plus 35?	95
4	Solve for x in the following equation: 15x plus 3 equals 63	[x=] 4
5	What is the distance between the points THREE COMMA NINE and NEGATIVE SEVEN COMMA NINE?	10 [units]
6	Billy made 25 out of 30 shots in basketball. What is the longest streak of consecutive shots that he **must** have made?	5 [shots]
7	How many positive integer factors does 36 and 48 have in common?	6 [divisors]
8	A book has 6 chapters about John, 8 chapters about Jacob, 12 chapters about Jingle, 4 chapters about Heimer, and 20 chapters about Schmitt. If the probability of picking a particular chapter is 6 over 25, what is that chapter about?	Jingle
9	The following sequence of operations is performed on a number: Add 3, multiply by 6, subtract 30, and finally divide by 3. What was the original number if the final result of these operations is negative six?	-1
10	Rachel and Mary each made a gallon of root beer by mixing water and concentrate. For Rachel's root beer, the ratio of water to concentrate was 5 to 1. For Mary's root beer, the ratio of water to concentrate was 6 to 1. They mixed the two gallons of root beer together. What is the new ratio of water to concentrate in this mixture?	71 to 13 or 71/13

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COLLEGE KNOWLEDGE BOWL ROUND #5 - SET 5

#	Problem	Answer
1	How many prime numbers are there between 50 and 60?	2 [primes]
2	I like pie. Every Monday, I eat 6 pies. For the next 4 days each week, I eat 4 pies a day. On weekends, I eat a total of 20 pies. On average, how many pies do I eat a day?	6 [pies]
3	What is the volume, in cubic units, of a cylindrical soup can with a radius of 2 units and a height of 3 units?	12 pi [cubic units]
4	A winch has a spool with a radius of 3 units. It turns at one revolution every 10 **seconds**. How many **minutes** does it take to reel in a rope that is 108 pi units in length?	3 [minutes]
5	The first two terms of the Fibonacci sequence are both 1, and each later term is formed by adding the two previous terms. What is the twelfth term of the Fibonacci sequence?	144
6	What is the midpoint of the line segment that connects the point TWO COMMA FIVE and the point SIX COMMA FIFTEEN? Give your answer as an ordered pair (x,y).	(4,10) or four comma ten
7	Miya is an avid runner. She starts a 10-day workout routine. On the first day, she runs 10 miles. On each subsequent day, she runs 4 more miles than the previous day. How many total miles will Miya have run by the end of the 10-day workout?	280 [miles]
8	In how distinct orders can you arrange the letters of the word "bananas", spelled B-A-N-A-N-A-S?	420 [ways]
9	A lily pad grows so that each day it doubles its area. On the 20th day it completely covers the pond. On what day was the pond half covered?	19[th] or [day] 19
10	A girl bought some pencils at 3 cents per pair of pencils, and the same number of pencils at 5 cents per pair. She sold all of the pencils at 3 pencils for 7 cents. For each dozen pencils, how many cents did she gain?	4 [¢]

"Math is Cool" Championships – 2012-13

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7th Grade – November 2, 2012

COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	A right triangle has legs of 27 inches and 36 inches. How many inches long is its hypotenuse?	45 [inches]
2	Solve for X if two raised to the power 3X is equal to 8.	[x=] 1
3	Martha rolls two cubical dice. As a reduced fraction, what is the probability that the sum of the two numbers she rolls is 8?	5/36
4	What is the units digit of the result when seven is raised to the thirtieth power?	9
5	What is the cube root of sixty-four?	4
6	What is the height in inches of a right circular cone with a base area of 81 pi and a volume of 108 pi?	4 [inches]
7	The sum of two numbers is 36, and their difference is 8. What is their product?	308
8	Among the one hundred counting numbers from one thousand through one-thousand ninety-nine, inclusive, how many are written with exactly two distinct digits? For example, the number one thousand is written with only two distinct digits, but one-thousand ninety-nine requires three distinct digits.	4 [numbers]
9	In a 10-kilometer race, a runner averaged three point five minutes per kilometer for the first 2 kilometers. She crossed the finish line with a total time of 39 minutes. For the final 8 kilometers, how many minutes per kilometer did she average?	4 [minutes]
10	An equilateral triangle and a square have equal perimeters. If the length of one side of the triangle is 16 cm, what is the area in square centimeters of the square?	144 [square centimeters]

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7th & 8th Grade – November 2, 2012

COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	The total value of 500 nickels equals the total value of how many quarters?	100 [quarters]
2	On a certain train trip, Hank travels at a constant speed. By 11 AM, he had completed one-fourth of the trip. By 2 PM, he had completed five-eighths of the trip. How many hours did it take him to complete the entire trip?	8 [hours]
3	What number does N stand for, if 6 to the power of N is 216?	3

Final Score:

KEY

(Out of 8)

"Math is Cool" Championships -- 2012-13

School:_____ Room # ____ Team #____

Name: _____Proctor: _____

7th & 8th Grade

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.*

	Answer	1 or 0	1 or 0
1	20 [miles]		
2	4 [in]		
3	6		
4	140 [degrees]		
5	1/8		
6	8 [factors]		
7	36 [in^2]		
8	9 [times greater]		

Math is Cool" Championships – 2012-13

7th Grade – November 2, 2012

Final Score:

KEY

Student Name_____

Proctor Name_____Room #_____

First Score

(out of 20)

SCHOOL NAME_____ Team #_____

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

This test is the only test where you will be penalized for incorrect responses. You will receive 2 points for a correct letter response, 0 points for leaving it blank and -1 point for an incorrect response. It is not necessary to write your personal name on the test, but you may put it at the bottom of the test so your coach will be able to give you back the correct test. This test is taken individually, but it is part of your team score, including zeros for missing team members. Your team score will be calculated by taking the mean of your four team members' scores. 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.*** *No talking during the test.*

DO NOT WRITE IN SHADED REGIONS

Answer		-1, 0 or 2	-1, 0 or 2
1	D		
2	C		
3	B		
4	E [13¢]		
5	D		
6	C		
7	A		
8	C		
9	D		
10	C		

"Math is Cool" Championships – 2012-13

7th Grade – November 2, 2012

Final Score:

KEY

SCHOOL NAME_____Team # ____

First Score

(out of 10)

Proctor Name_____Room #_____

Team Contest – Score Sheet

TEAM TEST - 15 minutes – 30% of team score

When you are prompted to begin, tear off the colored sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as ***1 or 0****. Record all answers on the colored answer sheet.*

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	DBAC		
2	7		
3	17 [%]		
4	60		
5	63		
6	8 [inches]		
7	44		
8	24 [orders]		
9	4362		
10	13 [values]		

"Math is Cool" Championships – 2012-13

7th Grade – November 2, 2012

Final Score:

KEY

First Score

Proctor Name_____Room #_____

SCHOOL NAME_____Team #_____

PRESSURE ROUND - 10 minutes – 5 problems - 5 rounds – 15% of team score

When it is time to begin, you will be handed a packet of five problems. There is a copy of the problems for each team member. Two minutes after the start of the test you are expected to submit an answer for one of the problems (it can simply be a guess). The maximum value of this answer is 1 point. In another two minutes you are expected to submit another answer to one of the four remaining problems; its maximum value is two points. This process will continue until all the problems are answered and each consecutive problem's worth will go up by one point. 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 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 ignored.

Pressure Round Answers

	Answer
1	100π [cubic units]
2	2.4[%]
3	1 [cubic yard]
4	49 [sq cm]
5	117/2

Final Score:

(Out of 8)

"Math is Cool" Championships -- 2012-13

School:_____ Room # ____ Team #____

Name: _____Proctor: _____

7th Grade **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.*

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

Math is Cool" Championships – 2012-13

7th Grade – November 2, 2012

Final Score:

First Score

(out of 20)

Student Name_____

Proctor Name_____Room #_____

SCHOOL NAME_____ Team #_____

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

This test is the only test where you will be penalized for incorrect responses. You will receive 2 points for a correct letter response, 0 points for leaving it blank and -1 point for an incorrect response. It is not necessary to write your personal name on the test, but you may put it at the bottom of the test so your coach will be able to give you back the correct test. This test is taken individually, but it is part of your team score, including zeros for missing team members. Your team score will be calculated by taking the mean of your four team members' scores. 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.*** *No talking during the test.*

DO NOT WRITE IN SHADED REGIONS

Answer		-1, 0 or 2	-1, 0 or 2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

"Math is Cool" Championships – 2012-13

7th Grade – November 2, 2012

Final Score:

SCHOOL NAME_____Team # ____

First Score
(out of 10)

Proctor Name_____Room #_____

Team Contest – Score Sheet

TEAM TEST - 15 minutes – 30% of team score

When you are prompted to begin, tear off the colored sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as ***1 or 0****. Record all answers on the colored answer sheet.*

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Final Score:

KEY

"Math is Cool" Championships – 2012-13

November 2, 2013

STUDENT NAME: _____ **School Name:** _____

Proctor Name: _____ Team #: _____ Room #: _____

7th & 8th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	3		
2	0		
3	3.5×10^6		
4	216		
5	17		
6	A [or 63/124]		
7	[x=] 17/9		
8	1 [mathlete]		
9	10 [tables]		
10	$16\frac{2}{3}$ [%]		
11	even		
12	[x=] 12		
13	82 [points]		
14	$36\sqrt{3}$ [sq cm]		
15	[$] 3182.70		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	45		
17	24 [ways]		
18	148 [stickers]		
19	[$] 60 or [$] 60.00		
20	29 [ways]		
21	-1/3		
22	792		
23	A		
24	60 [square miles]		
25	[x=] $\frac{C-B}{A}$		
26	x + 6		
27	inductive		
28	63 [units]		
29	252 [paths]		
30	B		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	(11, 5)		
32	80 [units]		
33	105 [meters]		
34	230 [feet]		
35	13/27		
36	6 [workers]		
37	BCAD		
38	4 [times]		
39	(1,4)		
40	4 [%]		
31-40 TOTAL:			

7th & 8th Grade