"Math is Cool" Championships – 2011-12

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November 4, 2011

7th & 8th Mental Math Contest

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

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by <u>all</u> 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.*

<u>Mental Math</u> – 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 4, 2011

Mental Math Contest

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.*

#	Problem
1	What is the sum of the first seven odd integers?
2	What is five to the fourth power?
3	Evaluate: seven squared minus three squared.
4	What is the remainder when three hundred forty-two is divided by seven?
5	What is the smallest square, three-digit palindrome?
6	How many factors does eighty have?
7	Find the area, in square inches, of a circle with a diameter of 10 inches.
8	What is the probability of rolling a sum greater than seven with two fair, six-sided dice?

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7th & 8th Individual Contest

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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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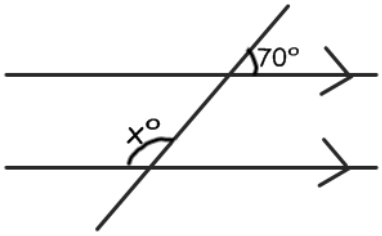
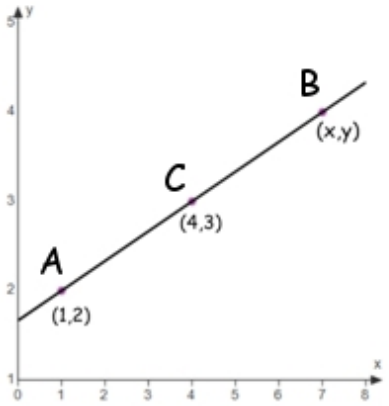
7^{th} & 8^{th} Individual Contest

	Questions 1-30: 2 points each
1	Let: A = 3 – 5.8 B = 5(-3) C = $\frac{2}{3}+\frac{3}{4}$ D = $\frac{3}{100}\div\frac{6}{200}$ Put the values A, B, C, D in order from smallest to largest
2	At 1:00 PM the temperature was 22 degrees. On the same day, at 9:00 PM, the temperature was -7 degrees. How many degrees did the temperature drop between 1:00 PM and 9:00 PM?
3	Evaluate: $\lvert -5+3 \rvert$.
4	Solve for x: 9x – 7 = 38
5	Sally went to the store to buy a pair of jeans for $20.00 and a shirt for $10.00. Sales tax is 9%. What is the total cost for the items including sales tax in dollars?
6	Jake, Jacob, and Joshua complete different amounts of pulling weeds in grandma's garden. They decided to split the $45 grandma gave them in a ratio of 2:3:4 respectively. How many dollars did Jake get?
7	Find the area of a right triangle with legs of length 12 and 18 feet.
8	7 pounds of coffee costs $44.24. How much does one pound of coffee cost, in dollars?
9	What is the area of a circle with diameter 10?
10	1 gallon of paint costs $22 and covers 300 square feet. Paige wants to paint a wall 8 feet by 150. How much, in dollars, will it cost her to paint the wall?

11	Joe was working on his math homework when his girlfriend came over and started drawing hearts on his division problem. If both hearts represent the same digit, what would the digit be? 211 R7 17) 35♡4 −34 1♡ − 17 24 − 17 7
12	In the picture below find the measure of angle x, in degrees. 
13	Find the mean of the following data set: 12, 7, 22, 15
14	Points A and B are the end points of the line segment. Point C is the midpoint. Find point B and write as an ordered pair in the form of (x,y). 
15	Find the sum of 1 + 2 + 3 + … + 25.

16	If "a" is directly proportional to "b" and inversely proportional to "c", and a=10 when b=6 and c=3, what is "a" when b=4 and c=10?
17	Three-quarters of Alice's age is half of Bob's age. Bob was six when Alice was born. How old is Alice now, in years?
18	A certain book has 100 pages, numbered 1-100. What is the sum of all the digits of all the page numbers?
19	Old MacDonald's farm has chickens and cows. The number of animal heads is 35 and the number of animal feet is 90. How many chickens are on the farm?
20	Tim can mow a lawn in 6 hours and Richard can mow the same lawn in 4 hours. How many hours will it take for them to mow the lawn if they work together?
21	How many ways can you make change for a dollar using only quarters and nickels?
22	A six-foot tall man casts a nine-foot long shadow. At the same time, a tree casts a 60-foot shadow. In feet, how tall is the tree?
23	How many of the 1000 smallest positive integers are divisible by 5, but not divisible by 3?
24	How many positive factors does 1728 have?
25	If $f(x) = 3x^2 - 2x - 1$ and $g(x) = 9 - 2x$, what is $f(g(3))$?
26	Jimmy was born 2500 days ago. If today is a Friday, on what day of the week was Jimmy born?
27	How many different ways can the letters in the word MANGOTANGO be arranged?
28	What is the smaller angle, in degrees, formed by the hands of an analog clock at 9:10?
29	Stacey is filling water jugs. She fills a cube with side length five, a cube with side length three, and a cube with side length two and pours all of them into an empty right cylinder tank with a radius of four. What is the height of the water in the tank?
30	Find the fifteenth term of this sequence: 0, 1, 1, 2, 3, 5, 8, …

Challenge Questions: 3 pts each	
31	What is the range of $y = x^2 - 8x + 2$?
32	What is the area of a triangle with sides of length 10, 13, 13?
33	In a particular game, it is possible to score points in groups of 7 and 11. What is the largest total score not possible to obtain?
34	Tina is offered a job with two options for pay. In the first option, she will make $5000 per month with no raises. In the second option, she will start at $3000 per month and get a raise of $500 at the beginning of every year. How much more money, in dollars, will she have made in five years if she chooses the higher paying option?
35	What is the smallest positive integer that leaves a remainder of 4 when divided by 5, a remainder of 5 when divided by 6, and a remainder of 6 when divided by 7?
36	Six straight lines are drawn on a piece of paper. What is the maximum number of regions into which the lines can divide the paper?
37	The dimensions of a right rectangular prism are in the ratio 2:3:4. The total surface area of the prism is 1300. What is the volume of the prism?
38	Find the equation, in slope-intercept form, of the line perpendicular to 4x – 3y = 18 and intersecting the point (8, 5).
39	A 10x12x15 rectangular solid is made up of 1x1x1 cubes. The rectangular solid is painted on the outside. How many of the small cubes are painted on an odd number of sides?
40	What is 201_{10} expressed in base 2?

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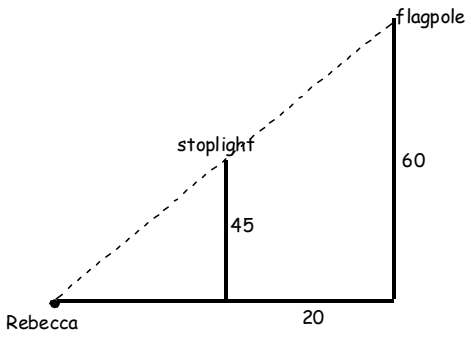
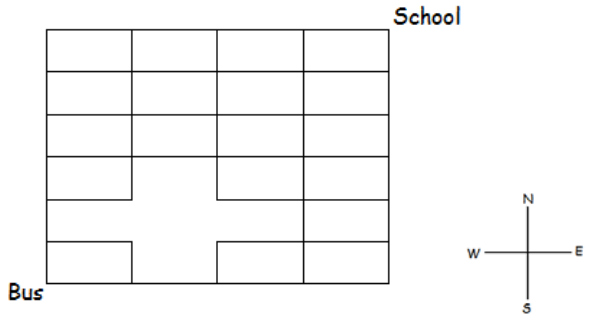
Individual Multiple Choice Contest

1	Today is Friday. What day of the week will it be 473 days after today? A) Tuesday B) Wednesday C) Thursday D) Friday E) Answer not given.
2	If Rebecca wants to wake up at 7 AM, what time should she go to bed if she wants eight hours of sleep? A) 9 PM B) 10 PM C) 11 PM D) 12 AM E) Answer not given.
3	Rebecca eats cereal, toast and juice for breakfast each morning. She has seven different kinds of cereal, four different kinds of bread, and two different kinds of juice to choose from each morning. How many different breakfasts can she have if a breakfast consists of one kind of cereal, toast, and juice? A) 3 B) 13 C) 42 D) 56 E) Answer not given.
4	Rebecca, while waiting for her bus, sees a stop sign. What is the sum of the number of sides of the stop sign and the number of diagonals that could be drawn in it? A) 8 B) 16 C) 24 D) 32 E) Answer not given.
5	Rebecca's study group consists of three boys and three girls, including Rebecca. On Friday, the group will be attending a concert. There are three seats in a row next to each other in the front row and three seats in a row next to each other in the tenth row. If all of the girls refuse to sit next to a boy, how many different ways can the group seat themselves in these six available seats? A) 6 B) 9 C) 36 D) 72 E) Answer not given.
6	A flagpole on Rebecca's way to school is 60 feet tall. A stoplight whose base is 20 feet in front of the sign is 45 feet tall. How many feet is Rebecca from the base of the flagpole (see figure)?  A) 50 B) 60 C) 75 D) 90 E) Answer not given.

7	In a parking lot, there are 24 cars with bumper stickers, 13 cars with fuzzy dice, 18 cars containing cats, 10 cars with bumper stickers and fuzzy dice, 9 with fuzzy dice and cats, 15 with cats and bumper stickers, and 7 cars with bumper stickers, fuzzy dice, and cats. Twelve cars in the lot have none of the above. How many cars are in the parking lot? A)30 B) 40 C)86 D) 98 E) Answer not given.
8	Using the conversion 1 mile = $\frac{8}{5}$ kilometers, convert 8.5×10^4 meters to miles. A) 53.125 B) 136 C) $\frac{213}{4}$ D) 1360 E) Answer not given.
9	A bus is taking students to school, with their positions and the streets between them shown in the figure below. If the bus can only go east or north, how many different routes can the bus take to get to school?  A) 43 B) 68 C) 108 D) 210 E) Answer not given.
10	Rebecca has to clean her house before her parents get home at 2 PM. She is going to start cleaning at 10 AM. Her house has 14 rooms and Rebecca can clean two rooms in three hours. To get her house cleaned on time, Rebecca will need help. What is the smallest number of friends that Rebecca will need to help her, assuming that they all work at the same rate as Rebecca? A) 7 B) 6 C) 5 D) 4 E) Answer not given.

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Team Contest

1	I'm thinking of a positive integer (counting number). If half my number is greater than 10, and three times my number is less than 70, how many different numbers could I be thinking of?
2	On a number line, the distance from point P to point 34 is 56 units. From point P to point 85 is more than 100 units. What is point P?
3	Three spherical beach balls just fit in a row in a rectangular box (right rectangular prism) with lid. Each ball has a radius of 8 inches. What is the volume of the box, in cubic inches?
4	How many positive integers (counting numbers) will divide into 120 with no remainder?
5	Put the following 4 values in order of size, smallest to largest. Your answer should consist of 4 letters in the correct order. $A = 93 \div 1000$ $B = 5.9 \times 10^{-1}$ $C = \frac{0.207}{10}$ $D = \frac{3 \times 10^0}{6 \times 10^2}$
6	A palindrome is a number that doesn't change when its digits are reversed. Give the prime factorization of the smallest 6-digit positive integer palindrome in which zero appears no more than twice.
7	In my zoo, the ratio of armadillos to baboons is 7 to 3, and the ratio of cougars to armadillos is 4 to 9. If I have the smallest possible number of animals in my zoo, how many more cougars do I have than baboons?
8	Mitchell lists the first 10 primes (P) in increasing order ($P_1, P_2, P_3, \text{L}, P_{10}$), and then creates 9 sums (S) by adding one more prime each time. That is, the sums are $P_1 + P_2 = S_1$, $P_1 + P_2 + P_3 = S_2$, and so on, all the way up through S_9, which is the sum of all 10 of the primes. How many of these nine sums are prime numbers?
9	Anita Ant has 3 sets of shoes — one blue set, one red set, and one yellow set. Each set consists of 6 shoes of the same color (and any shoe will fit any of her feet). All her shoes are in a big pile. Anita reaches in, grabs one shoe, and puts it on. Now she grabs another shoe from the pile. As a reduced fraction, what is the probability that this second shoe is the same color as the one she has already put on?
10	I write a sequence of 15 digits such that the sum of every four consecutive digits is 20. Some of these digits are shown. What digit goes in the box marked X? | | | | 3 | | 4 | | | | | 7 | | X | | |

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Pressure Round Contest

1	A mango smoothie sells for $1.48 and a fish taco for $2.39. Alan has $15.00 to spend. If he gets two fish tacos and as many mango smoothies as he can afford, how much money (as a decimal number of dollars) will he have left?
2	Subtract, and give your answer as a reduced common fraction: $0.6\overline{2} - 0.\overline{13}$
3	Berta makes a list of all possible 4-digit counting numbers (positive integers) that use the digits 2, 4, 6, and 8 exactly once each. She lists these numbers in order from LARGEST to SMALLEST. What is the fifteenth number on Berta's list?
4	How many perfect square numbers are between 101 and 800?
5	Both x and y are counting numbers less than 50, and $7x = y - 13$. Find the maximum value of $x + y$.

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	Jack is traveling on I-90 at a rate of 55 miles per hour. At this rate, how many hours will it take for Jack to travel 385 miles?	7 [hours]
2	A bag contains 8 red marbles, 3 green marbles and 4 blue marbles. If one marble is drawn randomly from the bag, what is the probability that it is not red?	7/15
3	What is the ratio of the circumference to the area of a circle with radius 3 inches?	2 to 3 [or 2/3]
4	On each hour of the day, a grandfather clock strikes the number of hours it is in the day. How many times does a grandfather clock strike in a day?	156 [times]
5	From a standard deck of 52 cards, what is the probability of first drawing a spade and then drawing a red card without replacement?	13/102
6	The product of two numbers is 84 and the sum is 20. What is the smaller of the two numbers?	6
7	Harry the Hippo weighs 300 pounds. When Harry goes on a diet, he can lose 10 pounds a week, but he gains back 2 pounds every day he goes off the diet. How much does Harry weigh, in pounds, after a 5-week diet followed by 6 days off the diet?	262 [pounds]
8	What is the sum of the two largest two-digit square numbers?	145
9	A candy bar costs 85 cents. Sales tax on candy is seven and five tenths percent. How much, in dollars, to the nearest cent will 5 candy bars cost?	[$] 4.57
10	Carlos can do 75 pushups in a minute. Alice can do 55 pushups in a minute. If Carlos does pushups for 8 minutes and Alice does pushups for 11 minutes, what is the positive difference of the total number of pushups each did?	5 [pushups]

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COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	How many diagonals can be drawn in a convex octagon?	20 [diagonals]
2	The ratio of cement to sand in a 90-pound bag of dry mix is 1 to 4. How many pounds of sand are in the bag?	72 [pounds]
3	The product of two consecutive positive odd integers is 143. What is their sum?	24
4	What is the probability of getting all heads when flipping 5 coins?	1/32
5	At a restaurant, Kenny receives a bill before taxes that reads thirty four dollars and forty cents. He knows that the sales tax is 8% and wants to leave a 20% tip based on the pre-tax amount. How much, in dollars rounded to the nearest cent, should Kenny pay in total?	[$] 44.03
6	Victoria notices that the length of the shadow of a tree is 68 feet at the same time that the length of the shadow of a 6-foot vertical pole is 8 feet. What is the height of the tree, in feet?	51 [feet]
7	What is the sum of all of the prime numbers from 10 to 25?	83
8	Three couples, wives and their husbands, are seated in a line. In how many distinct ways can this be done, if the couples must sit next to each other?	48 [ways]
9	If a tree falls in the forest, there is a 30% chance that the tree will make a noise. When it makes a noise there is an 80% chance someone will hear the tree. What is the probability that the next tree to fall in the forest will make a noise and be heard? Give the answer as a percent.	24 [%]
10	Dana's new house will have a yard that measures 30 yards by 40 yards. Her insurance will only cover 7020 square feet of land. What percentage of Dana's new yard will be covered by her insurance?	65 [%]

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	What is the perimeter of a square with side length 5?	20 [units]
2	Which quadrant contains the ordered pair negative three comma five?	2nd or II [quadrant]
3	The sum of Jed and Tyley's ages is 57. What will the sum of their ages be in 11 years?	79 [years]
4	The legs of a right triangle are 12 and 16 inches. What is the length of the hypotenuse in inches?	20 [inches]
5	I have 5 coins in my pocket that total thirty-seven cents. If I can only have pennies, nickels, dimes, and quarters, how many nickels do I have in my pocket?	2 [nickels]
6	If Mitch has a 40% chance of getting on base every time he's up to bat, how many times would you expect Mitch to get on base if he's up to bat 40 times?	16 [times]
7	When the following set of fractions is ordered, which number is in the middle: five-sevenths, two-thirds, and four-fifths.	5/7
8	Gambling Cameron rolls a pair of standard six-sided die. What is the probability that the sum rolled is a prime number?	5/12
9	What is the slope of the line perpendicular to a line that goes through the points three comma negative six and negative four comma negative four?	7/2
10	Sean has seven pairs of socks, three pairs of jeans, four pairs of shirts and two hats in his closet. How many different outfits can he wear if his outfit must consist of a pair of socks, pair of jeans, shirt and hat?	168 [outfits]

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COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	There are sharks and ducks in an aquarium. If there are 14 heads and 22 legs, how many sharks are in the aquarium?	3 [sharks]
2	If a plane flies 3,456 miles in 6 hours, what was the average speed of the plane in miles per hour?	576 [miles per hour]
3	If it is currently 3:00 PM on Saturday, what day and time will it be in sixty hours?	3:00 AM on Tuesday
4	What is the diameter, in inches, of a circle with an area of 144 pi square inches?	24 [inches]
5	On her first four tests, Tori earned an 80, 83, 86 and 87. What would she need to earn on her 5th test if she needs a mean average of 86?	94
6	What is the volume of a cone, in cubic inches, with a base diameter of 10 inches and a height of 15 inches?	125 pi [cubic inches]
7	At noon on a certain day, the temperature was 13 degrees Celsius; at 10 PM the same day, the temperature was negative 12 degrees Celsius. How many degrees Celsius did the temperature drop between noon and 10 PM?	25 [degrees Celsius]
8	There are 3 red, 2 green and 5 blue marbles in a bag. If you draw one marble and then another marble without replacement, what is the probability that the first marble is green and the second one is red?	1/15
9	The area of a trapezoid with height 6 inches is 108 square inches. What is the length, in inches, of the longer base if one base is twice the length of the other?	24 [inches]
10	Uncle Sam wants to buy exactly three times as many candy bars as magazines. If magazines cost $2.50 and candy bars cost 75 cents, how many candy bars can he buy if he has $20 to spend?	12 [candy bars]

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COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	A cube has a side length of 2 centimeters. If each side length is tripled, what is the new volume, in cubic centimeters?	216 [cm^3]
2	What is the positive difference between the mean and median of the following set of data: 5, 11, 7, 5, and 17?	2
3	At an electronics store, 48 televisions were sold in the month of May. If the store wants to increase its sales by at least 30% for the month of June, how many televisions must be sold in June?	63 [TV's]
4	Angela wants ice cream. Angela can choose from three flavors of ice cream and two types of cones. How many different orders can Angela make if she can only have one flavor of ice cream and can either have one cone or a bowl of ice cream?	9 [orders]
5	Chris climbs 200 feet up a hill every day but slides down 30 feet every night while he sleeps. How many days will it take him to reach the top of a fifteen hundred (1500) foot hill?	9 [days]
6	Two trains that are 81 miles apart are traveling toward each other on the same track. One train is going 15 miles per hour while the other is going 12 miles per hour. How many minutes will it take for the two trains to collide?	180 [min]
7	How many distinct ways can you arrange 6 people around a circular table?	120 [ways]
8	What is the sum of the first 8 positive even integers?	72
9	Charlie needs to paint the four exterior walls of a large rectangular barn. The length of the barn is 65 feet, the width is 40 feet, and the height is 30 feet. The paint costs $18 per gallon, and each gallon covers 420 square feet. How much, in dollars, will it cost Charlie to paint the barn?	[$] 270
10	Angle A is complementary to angle B and angle B is supplementary to angle C. What is the measure, in degrees, of angle A if angle D is congruent to angle C and measures 125°?	35 [degrees]

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COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	Coffee costs $32.88 for 6 pounds. How much does coffee cost per pound, in dollars?	[$] 5.48
2	How many prime numbers are between 40 and 60?	5
3	Dale can drive around a racetrack at a rate of 14 laps every 3 minutes. If every lap is 70 yards, how many yards can Dale drive in 15 minutes?	4900 [yards]
4	What is the sum of the two consecutive integers that the square root of 54 lies between?	15
5	A rectangle has a perimeter of 28 centimeters and one side has a length of 6 centimeters. What is the length, in centimeters, of the diagonal of the rectangle?	10 [cm]
6	The measures of the angles of a triangle are in the ratio of three to five to seven. In degrees, what is the measure of the largest angle?	84 [degrees]
7	What is the greatest common factor of 256 and 767?	1
8	A ticket to the Mariners game costs $12. At the game, garlic fries cost $6 and a bottle of soda costs $3. If David and Sarah each want to go to the game and each want their own garlic fries but want to share a soda, what is the least amount of money, in dollars, that David needs to bring if he's paying for it all?	[$] 39
9	What is the twenty-first term of the arithmetic sequence 4, 10, 16, and so on?	124
10	In a clothing store, everything is 20% off. If Lilly wants to buy a yellow polka dot bikini that is originally $15 and a pair of sunglasses that is originally $25, how many dollars does Lilly end up paying for both before tax?	[$] 32

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COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	Roger is 12 years older than Tina who is two-thirds the age of Roger. How old is Tina?	24 [years old]
2	How many ways can you arrange the letters in the word banana, spelled B-A-N-A-N-A?	60 [ways]
3	Lance rides his bike from home 3 miles west, 5 miles north and 15 miles east. If Lance wants to take the shortest path home, what is the shortest amount of distance, in miles, he must travel?	13 [miles]
4	A circle has an area of 9 pi square meters. What is the volume of the sphere, in cubic meters, that is formed when that circle is revolved around its diameter?	36 pi [m^3]

Final Score:

KEY

(Out of 8)

"Math is Cool" Championships -- 2011-12

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	49		
2	625		
3	40		
4	6		
5	121		
6	10 [factors]		
7	25 pi [sq. inches]		
8	5/12		

Math is Cool" Championships – 2011-12

7th Grade – November 4, 2011

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	A		
2	C		
3	D		
4	E [28]		
5	D		
6	E [80]		
7	B		
8	A		
9	B		
10	C		

"Math is Cool" Championships – 2011-12

7th Grade – November 4, 2011

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	3 [numbers]		
2	-22		
3	12,288 [cu in]		
4	16 [numbers]		
5	DCAB		
6	7•11•13•101 [any order]		
7	1 [cougar]		
8	3 [sums]		
9	5/17		
10	6		

"Math is Cool" Championships – 2011-12

7th Grade – November 4, 2011

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	[$] 1.34
2	27/55
3	4682
4	18 [square numbers]
5	53