"Math is Cool" Masters – 2011-12

Sponsored by:

5th Grade – May 19, 2012

GENERAL INSTRUCTIONS/INFORMATION applying to all tests and awards:

- *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).*
- *For fifth and sixth grade, all fractions and ratios must be reduced to simplest form.*
- *Counting or natural numbers refer to the numbers 1,2,3,4 and so on – zero (0) is NOT included.*
- *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.*
- *Individual Awards are determined by the sum of an individual's Mental Math score and Individual Test score. Individual Mental Math contributes to approximately 8% of the individual score. Individual ties are broken based on the following in this order: total individual points, total questions answered correctly, individual Mental Math score, total correct from Individual Test problems 31-40, total correct from Individual Test questions 16-30, single questions answered correctly on the Individual Test starting with question 40 and working backwards.*
- *Team Awards are determined by the team score which is calculated by 2(Top 3 Mental Math scores) + 2(Multiple Choice) + 6(Team) + 3(Relay) + (College Bowl) for approximate weights of 25%, 20%, 30%, 15% and 10% respectively. Team ties are broken based on highest event score in order of events starting with Mental Math.*

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Mental Math Contest

MENTAL MATH - 30 seconds per question – 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.*

	Question
1	Determine the perimeter in inches of a square with area 16 square inches.
2	What is the sixth smallest prime number?
3	I have one dollar in change made up of only pennies and nickels. If I have 25 pennies, how many nickels do I have?
4	Josh had three dozen chickens, but then a chicken thief came and stole one-fourth of his chickens. How many chickens does Josh have left?
5	Alice had $19 and then earned $5 more. Bob had $19 and then spent $5. How many more dollars does Alice now have than Bob?
6	What is three-halves minus three-fourths? Answer as a reduced fraction.
7	How many counting numbers are less than 54 but greater than 10?
8	What is the median of the following set of values? {negative two, zero, one, two, negative three}

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Individual Contest

INDIVIDUAL TEST - 35 minutes – 40 problems

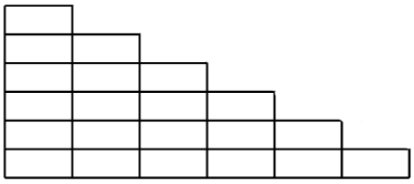
You may NOT be seated next to anyone from your school. If you are, MOVE NOW to avoid being disqualified! When you are prompted to begin, tear off the colored sheet and begin testing. Make sure your name and school are recorded on the answer sheet. The raw score will be 2 points for correct answers to 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.

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	If the day before yesterday was Monday, what day of the week will it be 17 days after yesterday?
2	What is the smallest whole number I could subtract from 2012 to get an answer less than 1000?
3	Nita draws 15 different squares — one each with whole-number side lengths 1, 2, 3, and so on up through 15 inches. She then calculates the area (in square inches) of each of her squares. For how many of her 15 squares will the area be an odd number?
4	What is the remainder when 12,345,678 is divided by 9?
5	In tennis the average point is 10 strokes, the average game is 6 points, the average set is 10 games, and the average match is 2 sets. How many strokes are hit in an average match?
6	Find the sum of 1.234 plus 5.67 plus 8.90, and give your answer as a decimal.
7	Find the number that goes in the blank to make the equation true. $4 + 9 + 36 = 4 \times 9 +$ ___
8	When 75 is subtracted from 25 times my number, the result is 100. What is my number?
9	To build a trumpet, you need 3 valves, 1 bell, 3 valve slides and 1 lead pipe. Wayne has 12 lead pipes, 11 bells, 39 valve slides and 28 valves. How many complete trumpets can he build?
10	Karen wants to decorate a birthday cake for her friend Hailey. If it takes Karen 8 seconds to write each letter in frosting, how many seconds would it take for Karen to write "Happy Birthday Hailey" in frosting?
11	What is the sum of 13,579 and 97,532?
12	Convert 0.2 to a reduced fraction.

13	Allie needs a half-gallon of milk to make milkshakes and three pints of milk to make custard. How many **CUPS** of milk does Allie need in all?
14	Grant's ants are on the loose! They are marching in 12 rows, with 16 ants in each row. If one anteater can eat 4 ants, how many anteaters will be needed to eat all of Grant's ants?
15	School starts at 8:20 AM, and Mr. Sampson needs to be at the school 15 minutes before class starts. If it takes him 1 hour and 15 minutes to drive from his house to the school, what time does he need to leave his house?
16	How many prime numbers less than 50 have "6" as one of their digits?
17	The sum of (21 x 1000) and (21000 ÷ 1000) is equal to 21 times X. What is the value of X?
18	Pat gives half of her raisins to Steph, and then gives 1/3 of the remaining raisins to Laura. After sharing with Steph and Laura, Pat had 6 raisins left. How many raisins did Pat start with?
19	Given the equation y = 7x - 9, find y when x = 4.
20	The product of two consecutive counting numbers is 240. What is the smaller of the two numbers?
21	In the 400-meter hurdle race in track, the first hurdle is 45 meters from the starting line. The last hurdle is 40 meters from the finish line while all the other hurdles are 35 meters apart. How many hurdles are in the 400-meter hurdle race?
22	Alice, Bob, Caroline, Debby, and Eureka are standing in a line for the movie "Finding Nemo." In how many orders can these five people stand in line, if Bob must be either in the front of the line OR in the back of the line?
23	When x = 4, what is the value of the following expression? $x(1 + x) - (x \div 2)$
24	A counting number is "cozy" if the sum of its digits will divide into the number with no remainder. How many 2-digit counting numbers less than 25 are "cozy"?
25	A grocery store has equal numbers of green apples and yellow apples. The green apples were put into bags of 14 apples per bag with 3 left over, while the yellow apples were put into bags of 10 per bag with 5 left over. What is the least number of green apples the store could have?
26	Brian's little brother Jimmy, who is just learning arithmetic, wrote the incorrect multiplication equation 943 x 75 = 63215. Brian changed three of the 10 digits of this equation to 0, producing a correct equation. What is the sum of the 3 digits that Brian changed to 0?
27	Which of the three symbols shown in the parentheses (< , > , =) should go in the blank between the following two fractions? $\frac{12}{5} \_\_ \frac{35}{15}$
28	"Licorice Express" sells licorice candy rope for $1.24 per foot. How much, in dollars, should be charged for 3 feet 9 inches of licorice candy rope?
29	Geraldine has a sack with 5 pink rabbits, 6 yellow rabbits, one blue rabbit, and 38 purple rabbits. How many rabbits would Geraldine have to take from her sack in order to ensure that she will have taken out at least one pink rabbit?
30	Allison went to the school auction and spent $56. She bought a coat and a hat. The ratio of the cost of the coat to the cost of the hat was 4:3. How much money (in dollars) did she spend on the coat?

Challenge Questions: 3 points each

31	Robert is stacking baseballs in the form of a pyramid. The base is a rectangle that measures 4 baseballs by 6 baseballs. Each baseball above the base rests on 4 baseballs below it. How many total baseballs are used in this pyramid?
32	The Cool Math Club held a bake sale. They sold cakes for $3.50 each and pies for $6 each, and raised a total of $119. The club donated 40 percent of the money raised from selling **cakes** to a charity. What is the minimum number of dollars the club could have donated to charity?
33	Bailey's clock runs slow. For every minute of time that passes, her clock hands only move 40 seconds. If she sets her clock correctly at 3 PM, what is the correct time when her clock next shows 7:24 PM?
34	In how many different ways can 7 diamonds be given to Anna, Bobby, and Chris if each person receives at least one diamond?
35	Don is building a staircase pattern as shown in the figure. Each block is one foot high. How many blocks would it take to build steps that would be 20 feet high? 
36	Adam can run a lap on a certain circular track in 50 seconds. Grampy Sampy can run a lap on this track in 90 seconds. They start at the same location at the same time and move in the same direction. If they each run at a constant speed, how many seconds will it take before Adam is next even with Grampy Sampy? If your answer is not a whole number, give it as a decimal.
37	Mark has some cookies, but Noah doesn't. Mark gives $\frac{3}{4}$ of his cookies to Noah. Half of the cookies Noah gets are peanut butter, which Noah doesn't like. So Noah gives the peanut butter cookies back to Mark. Mark eats $\frac{3}{5}$ of the cookies he has now, saving 28 cookies for later. How many cookies did Mark start with? (Only whole cookies are exchanged.)
38	Ruthie has 10 coins, all either nickels, dimes, or quarters. She has N nickels, D dimes, and Q quarters, where N, D, and Q are all different, and are each at least 1. Amazingly, she would have the same amount of money if she had Q nickels, N dimes, and D quarters. How many **cents** does Ruthie have?
39	From a well-shuffled standard 52-card deck, three cards are drawn. As a reduced fraction, what is the probability that there are exactly two black cards among the three drawn?
40	When simplified, the complex fraction below is equal to $\frac{14}{11}$. What number does x stand for? $\dfrac{x}{2+\dfrac{3}{2+\dfrac{5}{8}}}$

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Team Multiple Choice Contest

Four schools participated in a math competition, with each school represented by five contestants. Each contestant took 4 tests (Mental Math, Speed Math, Mystery Test, and Individual Test). Each test has a maximum of 100 points. The table below shows the results for the 5 contestants from one team (Mount Rainier).

USE THIS INFORMATION AS NEEDED TO SOLVE THE PROBLEMS BELOW.

Individuals from Mount Rainier

Contestant	Mental Math	Speed Math	Mystery Test	Individual Test
Trung	56	40	5	66
Bert	17	45	97	27
Stacey	80	?	20	68
James	77	53	?	64
Ernie	22	30	2	?

1	Of the 5 Mount Rainier contestants, 3 ranked higher than all their teammates on at least one test. Which 2 Mount Rainier students did not rank higher than their teammates on any test? A) Ernie & Trung B) Bert & James C) Stacey & Trung D) Ernie & James E) Bert & Ernie
2	What is the average (mean) of Stacey's scores if her Speed Math score was the average of the Speed Math scores of her four teammates? A) 42 B) 52.5 C) 53 D) 50.4 E) Answer not given.
3	The average (mean) of the Individual Test scores for the five Mount Rainier contestants was 51.2. What was the mean of Ernie's four test scores? A) 18 B) 26.3 C) 31 D) 12.8 E) Answer not given.
4	The contestants from Mount Rainier want to sit around a circular table. How many different ways can they seat themselves? Consider only the order in which they sit, not their position in relation to the room. A) 24 B) 120 C) 160 D) 200 E) Answer not given
5	The Mount Rainier team buys 3 pizzas. Each pizza costs $6.55, and they pay with a $20 bill. How many different combinations of coins can they receive in change, if change is only made with dimes, nickels, and/or pennies? A) 14 B) 16 C) 18 D) 20 E) Answer not given.
6	The Mount Rainier team buys 3 pizzas, each with 8 slices. Trung eats four fewer slices than three times the number James eats. James eats one more slice than Stacey, who eats five slices fewer than Ernie. Ernie eats seven slices of pizza. Bert eats all the remaining slices of pizza. How many slices does Bert eat? A) 5 B) 6 C) 7 D) 8 E) Answer not given.

PROBLEM RESTATED:
Four schools participated in a math competition, with each school represented by five contestants. Each contestant took 4 tests (Mental Math, Speed Math, Mystery Test, and Individual Test). Each test has a maximum of 100 points. The table below shows the results for the 5 contestants from one team (Mount Rainier).
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James	77	53	?	64
Ernie	22	30	2	?

7	To the nearest whole cent, how much money does Ernie owe for the share of the pizza he ate? A) $5.73 B) $1.72 C) $3.93 D) $2.81 E) Answer not given.
8	The five Mystery Test scores of the Moses Lake team were all different counting numbers. The average of the five scores was 60, and the range was 80. The lowest score was at least 10% of the highest score. What is the largest possible value of the median of these five scores? A) 60 B) 63 C) 79 D) 90 E) Answer not given.
9	At the end of the competition each of the four schools is awarded a plaque for its rank (1st through 4th place). Unfortunately, someone mixed up the awards so each school is handed a plaque at random. What is the probability that no school gets the correct plaque? A) 1/24 B) 1/8 C) 3/8 D) 5/8 E) Answer not given.
10	After awards have been distributed, every participant shook hands with every other participant, including his or her teammates. How many handshakes occur? A) 20 B) 10 C) 125 D) 190 E) Answer not given.

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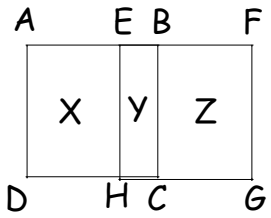
Team Contest

1	Alice had 98¢. She bought two oranges and an apple. Each orange costs the same amount, and an apple costs half as much as an orange. If Alice had 23¢ left after her purchases, what is the price in cents of one orange?
2	Peter is flying from New York to Scotland. The flight is 8 hours long and there is a 5-hour time difference, such that if it is 3 PM in New York it is 8 PM in Scotland. If Peter leaves New York at 5 AM, what time will it be in Scotland when he arrives?
3	The product of 7 times 13 is 91. What is the product of 7 times 7 times 10 times 13 times 13 times 10?
4	The phrase "GO COUGS" is written repeatedly without spaces (GOCOUGSGOCOUGSGOCO…). What is the least number of letters that could have been written when the 3-letter sequence GSG occurs 33 times?
5	Two congruent squares (ABCD and EFGH) are overlapped as shown, to form regions X, Y, and Z. The ratio of the areas of these three regions is X:Y:Z = 2:1:2. What is the least possible whole-number area (in square units) of rectangle AFGD if the length of segment EB is a whole number of units? 
6	A square number is the result of multiplying a counting number by itself. My house number has five digits (*abcde*). If each pair of consecutive digits (*ab*, *bc*, *cd*, and *de*) forms a 2-digit square number, what is my house number? (NOTE: A 2-digit number cannot have 0 as its tens digit.)
7	A river flows at 2 miles per hour. Going downstream on the river in a rowboat, it takes Jen 2 hours to travel 14 miles. If Jen rowed at this same rate, how many hours would it take her to row 15 miles upstream on this river?
8	The cherry tree I planted last spring had 60 cherries on it. Thirty percent of the cherries were eaten by birds and 28 cherries were wormy. I used the rest of the cherries to make a cupcake. If 5 cherries eaten by birds were wormy, how many cherries did I have for my cupcake?
9	Cam rolls three standard cubical dice and multiplies the numbers he rolls. The product of the three numbers is 36. Let S stand for the sum of the three numbers Chris rolls. What is the sum of all possible values of S?
10	Uncle Scrooge hid $2100 cash, divided among four boxes. He hid only $50 bills in a blue box, only $20 bills in a red box, only $10 bills in a yellow box, and only $5 bills in a white box. In one box, he hid 50 bills, in the second box he hid 20 bills, in the third box he hid 10 bills, and in the fourth box he hid 5 bills. How many dollars did Uncle Scrooge hide in the yellow box?

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Relay Contest

RELAYS - 5 minutes per relay – 4 problems per relay - 2 relays – 15% of team score

There is no talking during this event and you must always be facing forward. Person #1 will be given an answer sheet and will need to fill out the information at the top. The proctor will hand out a strip of paper to each person containing problem(s). These need to be face down on your desk until it is time for the relay to start. Person #1 will have problem #1 on his/her paper. Person #2 will have problem #1 and #2 printed on his/her paper. Person #3 will have problem #2 and #3 on his/her paper and Person #4 will have problem #3 and #4 on his/her paper. Once the relay begins, everyone may turn over their strip of paper and begin working. You may write on the strip of paper to come up with answers to the problems on your strip of paper. However, when person #1 figures out his/her problem, he/she will record ***ONLY his/her final answer*** *on the answer sheet and pass only the answer sheet back to the person #2. Person #2 has the option of changing Person #1's answer if he/she wants by crossing it out and putting a new answer. Once Person #2 records at least an answer for problem #2 on the answer sheet, he/she passes only the answer sheet behind to Person #3. This continues until person #4 puts an answer on the answer sheet and gives it to the proctor. A correct answer for problem #1, #2 and #3 is worth 1 point each. A correct answer from problem #4 is worth 2 points making each relay worth 5 points. You will see the expression* ***TNYWG*** [Proctor: write this on the board] *which means: "the number you will get". This is where you insert your teammate's answer into the new problem that you have on your paper so you can finish solving it. Once the relay begins, turn over your strip of paper and* ***make sure you have the right person number.*** *Each teammate has the option of changing any answers on the answer sheet when they have it in their possession, but once it is passed back, they will not see the answer sheet again. Remember, no talking and remain facing forward to avoid being disqualified!*

	Relay #1	
Question 1	Find the value of $(3+5)\times(6+2)$.	64
Question 2	How many two's would you need to multiply together to get TNYWG?	6 [two's]
Question 3	If TNYWG is the number of square inches in the area of a right triangle with legs of 3 inches and X inches, what is X?	4 [inches]
Question 4	If you flip a fair coin TNYWG times, what is the probability that it will land on heads every time? Answer as a reduced fraction.	1/16
	Relay #2	
Question 1	What is the surface area, in square inches, of a cube with a side length of 3 inches?	54 [sq inches]
Question 2	Divide TNYWG by 2 and then add the 4th prime number to it.	34
Question 3	TNYWG is the number of **meters** that Roofy must run to get to his dog bone. If he runs at 50 **centimeters** per second, how many seconds will it take Roofy to reach his bone?	68
Question 4	A certain number sequence starts {1, 1}. To get each larger number of the sequence, add the two previous numbers. Thus, the 3rd number of the sequence is 2 (because 1 + 1 = 2), and the 4th number is 3 (because 1 + 2 = 3). What is the product of TNYWG and the 6th number of this sequence?	544

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	Sam had 20 gummy bears. He gave half of them to Kim, and then gave some to Delia. If Sam had 6 gummy bears left, how many did he give to Delia?	4 [gummy bears]
2	There are a total of 96 legs in a group of six-legged beetles. How many beetles are there in the group?	16 [beetles]
3	What is the smallest possible sum of the digits of a counting number between 12 and 2012?	1
4	How many zeros will it take to write the number "one-hundred thousand"?	5 [zeros]
5	What is the area, in square inches, of a triangle with base 18 inches and height 4 inches?	36 [sq inches]
6	On Sunday, Sarah ate one cherry. She then ate two cherries on Monday, four on Tuesday, eight on Wednesday, and so on, all week. How many cherries did Sarah eat on Saturday of that week?	64 [cherries]
7	What is 5 times 4 times 3 times 2 times 1?	120
8	There are 4 red marbles, 3 green marbles, and 5 blue marbles in a bag. Beth takes one marble out of the bag, at random. What is the probability that the marble will be green? Answer as a reduced fraction.	1/4
9	Jay draws a square with a perimeter of 60 centimeters. Inside Jay's square, Kay draws a square with a perimeter of 28 centimeters. How many square centimeters are in the area that is outside Kay's square but inside Jay's square?	176 [square cm]
10	What is the product of the seventh prime number and the tenth prime number?	493

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COLLEGE KNOWLEDGE BOWL ROUND #2 - SET 2

#	Problem	Answer
1	Find the value of 676 minus 293.	383
2	Jimmy can make 6 different combinations of one shirt and one jacket. If he has 3 different shirts, how many different jackets does he have?	2 [jackets]
3	When I count backwards from 99 by 5's, what is the second EVEN number I will say?	84
4	It takes Jacob 120 minutes to run the 12 miles from his school to his house. At this rate, how many minutes would it take Jacob to run one mile?	10 [minutes]
5	What is the diameter in centimeters of a circle whose radius is 7.5 centimeters?	15 [cm]
6	I pay $2 for 4 OUNCES of cheese. At this same price per weight, how much (in dollars) would 3 POUNDS of cheese cost?	24 [dollars]
7	What is the reduced form of the fraction "sixteen over forty-eight"?	one-third [or "one over three"]
8	Ellen adds three numbers: 300 plus 20 plus a counting number less than 10. When this sum is divided by 9, the remainder is 0. What was the third number Ellen added?	4
9	When Liza added the first ten counting numbers, she got the incorrect sum of 48. Liza's mistake was that she left out one of the ten numbers, but she correctly added the other nine. Which number did Liza leave out of her sum?	7
10	Kyle starts climbing a hill on Tuesday morning. Every morning he climbs 70 feet, and every afternoon, he falls back 20 feet. If the hill is 165 feet tall, on what day of the week will Kyle reach the top of the hill?	Thursday

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COLLEGE KNOWLEDGE BOWL ROUND #3 - SET 3

#	Problem	Answer
1	Donna only eats doughnuts on Tuesdays. If she eats 7 doughnuts every Tuesday, how many doughnuts will she eat within a 4-week time period?	28 [doughnuts]
2	What is the tens digit of the number twenty-four thousand, five hundred one?	0
3	What time will it be 70 minutes before 10:30 AM?	9:20 AM
4	What is two-thousand, nine-hundred ninety divided by 13?	230
5	Mary is embroidering tigers on her backpack. Each of her tigers has either 7 stripes or 6 stripes. If Mary embroiders 33 stripes, how many tigers are on her backpack?	5 [tigers]
6	I can trade 5 leprechauns for 7 turtle monsters. How many turtle monsters will I get in return for trading 25 leprechauns?	35 [turtle monsters]
7	Three sides of my square have a total length of 18 inches. In square inches, what is the area of my square?	36 [sq. inches]
8	On a True-False test of 5 problems, Danny guesses randomly on each problem. Danny is X times as likely to get exactly one problem right as to get no problems right. What is X?	[X=] 5
9	Mitchell and all of his friends are standing in a circle, equally spaced, for a game of Farkleball. Starting from Mitchell, who said "1", the players in the circle count off in a clockwise direction by ones. If the player who said "12" is directly opposite the player who said "32", how many people are in the circle?	40 [friends]
10	Gregg picks 3 flowers on Sunday. Each day after that he picks one more flower than the day before. How many flowers has he picked by the end of Thursday?	25 [flowers]

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COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	Find the value of 63 plus 36 plus 98.	197
2	Cakes A, B and C are all rectangular in shape and all have the same height. Measured in the same units, Cake A has length 9 and width 10, cake B has length 46 and width 2, and cake C has length 13 and width 7. Which cake has the greatest volume? Answer with a letter.	[cake] B
3	Stephanie can jump over three taco trucks at a time. How many jumps will she need to jump over 67 taco trucks?	23 [jumps]
4	Joyce exercised each day for a week. On Monday through Friday, she exercised for 7 minutes, 3 minutes, 7 minutes, 5 minutes, and 6 minutes, respectively. She forgot to write down how long she exercised on Saturday and Sunday, but she knows that the single most frequent value for the week was 5 minutes. How many minutes did Joyce exercise that week?	38 [minutes]
5	Find the quotient when 576 is divided by 24.	24
6	Suzy sells socks in sets. Seven sock sets sell for 63 cents. Assuming a constant sock-to-cent ratio, how many **CENTS** will 16 sock sets sell for?	144 [cents]
7	Ron has a 90-inch-long rope. He cuts the rope 9 times to make pieces of equal length. How many inches long is each little piece of rope?	9 [inches]
8	Josh has 7 more Pokémon cards than Mark. Together they have 35 cards. How many cards does Josh have?	21 [cards]
9	Face cards are kings, queens, and jacks. Caleb made a special deck of cards by discarding all clubs, face cards, and threes from a standard deck of cards. If a card is drawn at random from this new deck, what is the probability that it has an even number on it? Answer as a reduced fraction.	5/9
10	David is folding a piece of paper. Each fold cuts the area of the paper in half. If he folds the paper 3 times and ends up with a piece of paper 12 square units in area, what was the area in square units of the original unfolded piece of paper?	96 [square units]

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COLLEGE KNOWLEDGE BOWL ROUND #5 - SET 5

#	Problem	Answer
1	Six ponies are carrying fairies to their kingdom. Each pony is carrying two fairies and each fairy is carrying five wands. How many total wands are there?	60 [wands]
2	Round five thousand two-hundred eighty-one to the nearest hundred.	5300
3	What is the probability of rolling a prime number on one roll of a standard cubical die? Give your answer as a reduced fraction.	1/2
4	To make a peanut butter and jelly sandwich, you will need 1 scoop of peanut butter, 3 scoops of jelly and 2 slices of bread. If you have 20 scoops of peanut butter, 23 scoops of jelly and 31 slices of bread, how many complete sandwiches can you make?	7 [sandwiches]
5	Gerald Giraffe is 11 feet 11 inches tall. When Gerald's height is expressed as Y **YARDS** and X **INCHES**, where both Y and X are counting numbers, what is the smallest possible value of Y plus X?	38
6	Moritz has a seven-eighths chance of making a goal each time he tries. What is the expected number of goals he will make if he tries to shoot 24 goals?	21 [goals]
7	A triangle has angles of 45 degrees, x degrees, and 2x degrees. Find the value of x.	[x=] 45
8	In a barn of cows and chickens, there are 25 heads. Each chicken wears running shoes and each cow wears cowboy boots. All wear one shoe or boot per foot. If 26 running shoes are needed for the chickens, how many cowboy boots are needed for the cows?	48 [cowboy boots]
9	Fourteen plus my number is equal to two times eleven. What is fourteen minus half my number?	10
10	Forester Fred wants to plant his fifteen identical tree seedlings in a rectangle so that there are equal numbers of trees in each row and equal numbers of trees in each column. The rows will be oriented along a north-south axis. How many arrangements can he make?	4 [arrangements]

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COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	Sonia is facing southwest. What direction will she be facing if she turns 180 degrees counterclockwise?	northeast
2	A certain regular polygon has a perimeter of 72 inches. If the side length of the polygon is 9 inches, how many sides does the polygon have?	8 [sides]
3	What is 40 percent of 360?	144
4	Biff has 323 more friends on Facebook than Eho does. Eho has 95 friends. How many friends does Biff have?	418 [friends]
5	The angry birds are angry that their pig neighbors stole their eggs. In revenge, they launch themselves at the pig houses. If it takes 3 birds to destroy one pig house, how many birds would it take to destroy 21 pig houses?	63 [birds]
6	Annie wants to get wants to get at least ten and a half hours of sleep after a long day, but she needs to wake up at 7 AM the next morning. What is the latest time she can go to sleep?	8:30 PM
7	Julia likes to bake GIGANTIC cakes! Today she baked a cake made up of 12 equal slices with a total volume of 72 cubic miles. If Georgia the Giant ate two-and-a-half slices of the cake, what is the volume, in cubic miles, of the remaining cake?	57 [cubic miles]
8	Chad lives 24 YARDS away from Awesome Land. If he walks at a pace of 12 FEET PER MINUTE, how many SECONDS will it take for him to get from his house to Awesome Land?	360 [seconds]
9	How many cubes of edge length 1 unit would it take to make a solid cube with edge length 6 units?	216 [cubes]
10	Jae and Jimmy together bought 140 cheeseburgers, which they lined up in a row. They agreed that Jimmy would eat every 7^{th} burger and Jae would eat every 3^{rd} burger. When they both tried to eat the same burger, they would play rock-paper-scissors and the winner would eat the burger. How many burgers did they eat in all?	60 [burgers]

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COLLEGE KNOWLEDGE BOWL ROUND - EXTRA

#	Problem	Answer
1	What is the median of the following collection of numbers? {1, 1, 4, 5, 6, 7, 7, 7, 10}	6
2	Jimmy Neutron can solve a Rubik's cube from start to finish in 3 SECONDS. How many Rubik's cubes can he solve in two HOURS?	2400 [Rubik's cubes]
3	If Miya earns 1 pizza for every 7 books she reads, how many books will she need to read to earn 1 pizza every day for the month of June?	210 [books]

Final Score:

KEY

First Score

(out of 8)

"Math is Cool" Masters – 2011-12

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5th Grade – May 19, 2012

Name_____Team #_____ Room #_____

School Name _____ Proctor Name_____

Mental Math Contest

MENTAL MATH - 30 seconds per question – 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.*

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	16 [inches]		
2	13		
3	15 [nickels]		
4	27 [chickens]		
5	[$] 10 or [$] 10.00		
6	3/4		
7	43 [numbers]		
8	0		

"Math is Cool" Masters – 2011-12

5th Grade – May 19, 2012

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

KEY

First Score

(out of 20)

TEAM 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. When you are prompted to begin, tear off the colored sheet, pass out a copy of the test to each team member, and begin testing. Since this is a multiple choice test, ONLY a letter response should be listed as an answer on the answer sheet.

DO NOT WRITE IN SHADED REGIONS

Answer		-1, 0 or 2	-1, 0 or 2
1	A		
2	B		
3	E [21.25]		
4	A		
5	D		
6	C		
7	A		
8	D		
9	C		
10	D		

"Math is Cool" Masters – 2011-12

5th Grade – May 19, 2012

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

KEY

First Score

(out of 10)

TEAM TEST - 15 minutes – 10 problems – 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 colored answer sheet.*

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	30 [cents]		
2	6 PM		
3	828,100		
4	232 [letters]		
5	15 [sq units]		
6	81649		
7	5 [hours]		
8	19 [cherries]		
9	34		
10	[$] 50		

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KEY

5th Grade – May 19, 2012

School:_____Team #_____

Proctor: _____ Room #_____

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
64	**6 [two's]**	**4 [inches]**	**1/16**
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 2

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
54 [sq in]	**34**	**68**	**544**
1 or 0	1 or 0	1 or 0	2 or 0

Final Score:

First Score
(out of 8)

"Math is Cool" Masters – 2011-12

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5th Grade – May 19, 2012

Name_____Team #_____ Room #_____

School Name _____ Proctor Name_____

Mental Math Contest

MENTAL MATH - 30 seconds per question – 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.*

DO NOT WRITE IN SHADED REGIONS

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

"Math is Cool" Masters – 2011-12

5th Grade – May 19, 2012

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

First Score
(out of 20)

TEAM 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. When you are prompted to begin, tear off the colored sheet, pass out a copy of the test to each team member, and begin testing. Since this is a multiple choice test, ONLY a letter response should be listed as an answer on the answer sheet.

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" Masters – 2011-12

5th Grade – May 19, 2012

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

First Score
(out of 10)

TEAM TEST - 15 minutes – 10 problems – 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 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			

"Math is Cool" Masters – 2011-12

May 19, 2012

Final Score: 1-15	Final Score: 16-30	Final Score: 31-40
KEY	KEY	KEY

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

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

5th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	Friday		
2	1013		
3	8 [squares]		
4	0		
5	1200 [strokes]		
6	15.804		
7	13		
8	7		
9	9 [trumpets]		
10	152 [seconds]		
11	111,111		
12	1/5		
13	14 [cups]		
14	48 [anteaters]		
15	6:50 AM		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	0 [prime numbers]		
17	1001		
18	18 [raisins]		
19	[y=] 19		
20	15		
21	10 [hurdles]		
22	48 [ways]		
23	18		
24	6 [numbers]		
25	45 [apples]		
26	14		
27	>		
28	[$] 4.65		
29	46 [rabbits]		
30	[$]32.00 or [$]32		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	50 [baseballs]		
32	[$] 14.00 or [$] 14		
33	9:36 PM		
34	15 [ways]		
35	210 [blocks]		
36	112.5 [seconds]		
37	112 [cookies]		
38	155 [cents or ¢]		
39	13/34		
40	[x=] 4		
31-40 TOTAL:			

5th Grade

Final Score: 1-15	Final Score: 16-30	Final Score: 31-40

"Math is Cool" Masters – 2011-12

May 19, 2012

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

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

5th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
31-40 TOTAL:			

5th Grade