"Math is Cool" Masters – 2010-11

Sponsored by: Numerica Credit Union

5th Grade – May 21, 2011

Individual Contest

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by <u>all</u> involved. Bad sportsmanship may result in disqualification.*
- *Calculators or any other aids may not be used on any portion of this contest.*
- *Unless stated otherwise:*
  - *For problems dealing with money, a decimal answer should be given.*
  - *Express all rational, non-integer answers as reduced common fractions.*
- *For fifth and sixth grade, all fractions and ratios must be reduced.*
- *Counting or natural numbers refer to the numbers 1,2,3,4 and so on and do NOT include 0.*
- *Units are not necessary unless it is a problem that deals with time and, in that case, am or pm is needed. 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 filled out at the top of the sheet.*
- *Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will also be scored as a 0.*

INDIVIDUAL TEST - *35 minutes*

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. Each problem is scored as a 1 or 0. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute warning.

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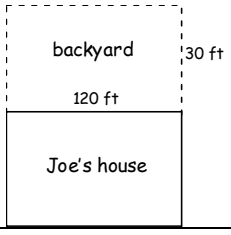
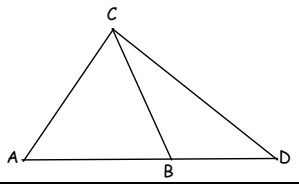
Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	How many hours and minutes are between 11:55 PM and the next 1:15 AM? (Answer in the form "__ hr and __ min", filling in the blanks. The number of minutes in your answer must be less than 60.)
2	A building has 23 windows per floor. If the building has 40 floors, how many windows total does the building have?
3	What is the sum of 3,876 and 8,347?
4	Solve for S in the following equation: $S + 7 = 10$
5	There are 360 kids and 45 camp counselors participating in Math Camp. The kids will be split into groups so that each group is the same size, each group has one counselor, and each counselor is assigned one group. How many kids will be in each group?
6	What is the remainder when 347 is divided by 15?
7	The zip line at the math retreat hung 12 feet 7 inches above the ground. How many inches above the ground was the zip line?
8	Matt goes to the grocery store and spends $9.37 on milk, bread, lunch meat, and cheese. He buys milk for $2.17, bread for $1.23, and lunch meat for 3.87. How much did the cheese cost, in dollars?
9	Subtract 159.921 from 207.876 and give your answer as a decimal.
10	Joe's dad is getting ready to build a fence around their rectangular backyard. How many feet of fencing will be needed to build the fence? The fence is shown as a dashed line in the figure. 
11	Refer to the diagram for question #10. Find the area, in square feet, of Joe's backyard.
12	Three sisters empty their piggybank and find 14 half-dollars, 9 quarters, 12 dimes, and 43 nickels. If they divide the money equally, how much, in dollars, will each of the sisters receive?
13	What is the quotient of 60,924 divided by 4?

14	Tom needs to catch the bus home from work. It is 5:15 PM, and a bus has just left. A bus will leave from out front of Tom's office every 7 minutes. Tom has a meeting that ends at 6:30 PM. How many minutes will Tom have to get to the first possible bus once his meeting ends?
15	What is the probability that if you flip a coin twice, you will get heads both times? Answer as a reduced fraction.
16	Amanda found the positive difference between 50 percent of 30 and 70 percent of 200. Blake found X percent of 250. If Amanda's answer is the same as Blake's answer, what is X?
17	A sign along a straight north-south road points north to Oaktown 8 miles away, south to Elmwood 17 miles away, and north to Pineville 20 miles away. Alice travels along this road from Pineville to Elmwood and then to Oaktown. How many miles does she travel?
18	The ratio of cats to dogs to birds at the pet store is 4:3:5. If there are 4 more cats than dogs at the pet store, how many birds are there?
19	Find the sum of negative 8, negative six, and positive 3.
20	Find the sum of the first 20 counting numbers that are multiples of 4.
21	How many times must a piece of paper be folded exactly in half in order to divide it into 256 equal sections?
22	Frodo has a 9-by 10-**yard** rectangular plot of land. He wants to put in orc-repelling posts around the perimeter every $1\frac{1}{2}$ **feet**. How many posts does Frodo need?
23	One-fifth of all the jellybeans in a jar were red. Alice added at least four red jellybeans (and only red jellybeans) to the jar so that now half the jellybeans in the jar are red. What is the smallest number of jellybeans Alice could have added?
24	A tetrahedron is a triangular pyramid. What is the sum of the number of vertices, faces, and edges of a tetrahedron?
25	Bertha is stacking oranges in the form of a pyramid. The base is a rectangle that is four oranges by six oranges. Each orange above the base rests on 4 oranges below it. How many total oranges are used in this pyramid?
26	How many counting numbers will divide into 60 with no remainder?
27	There are 5280 feet in a mile. What is the smallest whole number of miles that would total more than one million feet?
28	A semicircle of radius 6 cm is enclosed in the smallest possible rectangle. What is the area, in square cm, of the rectangle?
29	A book about gardening has 7 pages with photographs, each separated from the next page of photographs by 5 pages of text. All pages of the book are numbered in order. The last photograph in the book is on page 79. What is the page number of the first photograph in the book?
30	The area of triangle BDC is one-third of the area of triangle ACD (figure not drawn to scale). As a reduced common fraction, what is the ratio of the length of segment BD to that of segment AB? 

5^{th}: Challenge Questions: 3 points each	
31	I have some dimes, which I can put into stacks with either 50 dimes in each stack, or 70 dimes in each stack, or 75 dimes in each stack, with no dimes left over in any case. In DOLLARS, what is the smallest possible value of my dime collection?
32	Andy counts up by 5s, starting with 3. Betsy counts down by 4s, starting with 97. What is the sum of all numbers that Andy and Betsy <u>both</u> say?
33	How many prime numbers less than 100 are either 1 less than a square number or 1 more than a square number?
34	Stacey buys a CD costing $19.48, and pays with a twenty-dollar bill. The cashier gives her change in dimes, nickels and/or pennies. How many different ways can the change be made?
35	The sum of the length, width, and height of a box (rectangular prism) is 12 units, and each measurement is a whole number of units. How many cubic units larger is the largest possible volume for this box than the smallest possible volume?
36	Give the letter or letters of all of the following statements that are true about the set of numbers $\{12, 0, -21, 6\}$. If no statement is true, answer "none". (A) Exactly 3 of the 4 numbers are even. (B) Exactly 3 of the 4 numbers are positive. (C) Exactly 3 of the 4 numbers are greater than the mean (average) of all 4 numbers. (D) Exactly 3 of the 4 numbers can be divided by 3 with no remainder.
37	For the first 100 counting numbers, Joel calculates the square of each number, then subtracts the number itself from this square. When he writes out the final answers to these calculations, how many of these 100 answers will have 0 as the units (ones-place) digit?
38	Alice writes an addition problem, adding two 2-digit counting numbers to get a sum of 134. Bob erases the tens digit of one of Alice's addends, adds again, and gets a sum of 84. What is the smallest possible value for the larger of Alice's two addends?
39	Malia puts together six 4-by-4-by-1 inch square layers with 1-inch cubes, then stacks them up to form a rectangular prism. This prism rests on a wooden table, on its square base. All the 1-inch cubes Malia used are white except one, which is red. As a reduced fraction, what is the probability that the red cube is visible if it is located at random?
40	Ron and Hermione are on a road trip. They decide to split the driving: for every three miles Ron drives, Hermione drives 5. Ron averages 30 miles per hour (mph) and Hermione averages 80 mph. What is the overall average speed for the trip, in mph? If your answer is not a whole number, round to the nearest whole number.

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Team Multiple Choice Contest

1	Samantha earns $5 every Monday, Wednesday, and Friday. She earns $3 every Tuesday, Thursday, and Saturday. She is saving up to buy a camera, which costs $199. She starts saving her earnings on Wednesday. On what day of the week will Samantha first have enough money to buy the camera? A) Monday B) Tuesday C) Wednesday D) Thursday E) Answer not given

USE THIS INFORMATION FOR PROBLEMS #2 and #3.

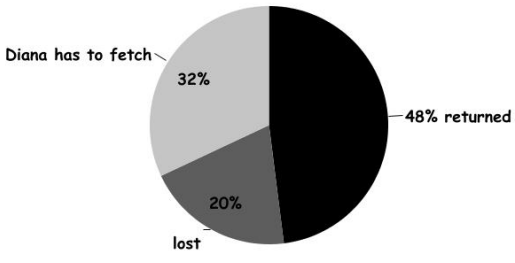
Brad is selling gingerbread. Each batch is in a rectangular pan, 8 by 12 inches, and is two inches deep. He cuts it into 3 by 4 by 2 inch bars that sell for $5.50 per bar.

2	What is the total volume, in cubic inches, of 1 batch of Brad's gingerbread? A) 24 B) 128 C) 192 D) 96 E) 12
3	Exactly how many batches of gingerbread must Brad sell in order to bring in $110? A) 20 B) $2\frac{1}{2}$ C) $2\frac{1}{4}$ D) $5\frac{1}{2}$ E) Answer not given

USE THIS INFORMATION FOR PROBLEMS 4, 5, and 6.

Diana throws 75 sticks for her dog Callie to fetch. The pie chart shows the percent of these sticks that Callie returns to Diana ("returned"). Of the sticks that Callie does not return, some Diana has to fetch herself, and some are never seen again ("lost").

Callie's stick-fetching percentages



4	How many of the sticks that Diana throws are lost? A) 75 B) 32 C) 48 D) 20 E) Answer not given
5	What is the ratio of the number of sticks Diana fetches to the number of sticks Callie returns? A) 2 to 3 B) 1 to 2 C) 3 to 2 D) 3 to 5 E) 3 to 4
6	Of the sticks not returned by Callie, what fraction of them are lost? A) $\frac{1}{5}$ B) $\frac{5}{13}$ C) $\frac{4}{15}$ D) $\frac{5}{17}$ E) Answer not given

USE THIS INFORMATION FOR PROBLEMS #7 AND #8.

The U.S. (except Alaska and Hawaii) is divided into four time zones. Boston is in the Eastern time zone, Chicago in the Central time zone, Salt Lake City in the Mountain time zone, and Los Angeles (L.A.) in the Pacific time zone. The westernmost zone is the Pacific zone, where the time is Pacific Standard Time (PST). The table shows how PST is related to time in the other 3 time zones.

Mountain Standard Time	PST + 1
Central Standard Time	PST + 2
Eastern Standard Time	PST + 3

7	A plane is flying from Chicago to L.A. at 500 miles per hour. The distance between the cities is 2000 miles. If the plane leaves Chicago at 10:00 AM (Chicago time) and takes two hours for a stop in Salt Lake City, what time will it be in L.A. when the plane arrives? A) 2 PM B) 12 PM C) 4 PM D) 6 PM E) Answer not given
8	A plane leaves Boston at 10:00 AM (Boston time) and flies non-stop to L.A., 2700 miles away, at 580 miles per hour (mph). On the same route, a second plane is flying non-stop from L.A. to Boston at 620 mph. If the second plane leaves L.A. at 10:00 AM (Los Angeles time), what time will it be in L.A. when the two planes meet? A) 12:25 PM B) 10:42 AM C) 10:48 AM D) 11:33 AM E) Answer not given

USE THIS INFORMATION FOR PROBLEMS #9 AND #10.

Biff buys one or more notebooks at $1.98 each, and Eho buys one or more notebooks at $1.76 each. The total cost of all the notebooks is between $15 and $20 (ignoring tax). The total exact bill for all the notebooks can be paid entirely in nickels.

9	On the basis of the information given above, how many different total amounts might the notebooks have cost? A) 1 B) 3 C) 5 D) 7 E) 9
10	If Biff and Eho can each pay their separate exact bills entirely in nickels, how many nickels did they have to pay in all? A) 374 B) 352 C) 308 D) 187 E) 286

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Team Contest

1	What is the sum of the mixed number $483\frac{23}{100}$ and the decimal number 711.078? Give your answer as a decimal.
2	Sandra has a jug that holds 2011 milliliters (mL). She buys juice in bottles holding 1/2 liter. If she buys the smallest number of bottles of juice that will fill the jug, how many mL of juice will she have left over?
3	Artie works from 8:15 AM to 3:45 PM, with an hour off for lunch starting at 11:15 AM. Beth works from 9:30 AM to 2:00 PM, with a lunch break from 11:45 AM to 12:30 PM. How many **minutes** a day are Artie and Beth at work at the same time?
4	If $A@B = \left(A \times B\right) - \frac{A}{B}$, find $\left(12@3\right)@2$.
5	There are 90 2-digit counting numbers. How many of them have their tens digit either 1 more than or 1 less than their units (ones-place) digit?
6	Abel ate 8 apples in 18 minutes. Abby ate apples at only half Abel's rate. How many minutes did it take Abby to eat 180 apples?
7	When the word ADDITION is written many times in a row with no spaces, what will be the 3-letter sequence formed by the 50th letter, the 100th letter, and the 1000th letter, in that order?
8	In the following equation, three 3-digit whole number addends are added (as shown) to produce a 4-digit sum. Each underlined letter stands for a different digit, all of them **even**. Find the digit that the letter a stands for. $\underline{a}78 + 6\underline{b}6 + 15\underline{c} = 1\underline{d}38$
9	A shop sells apples at 40¢ each and oranges at 50¢ each. They also sell bags with 3 apples and 2 oranges for $2.00 per bag, and bags with 1 apple and 3 oranges for $1.80 per bag. What is the least Martin could pay (in dollars) to get at least five apples and at least 6 oranges from this shop?
10	Karen writes a 2-digit counting number. She finds the sum of the digits of this number, then multiplies this sum by her original number. The product is 1440. What is Karen's original number?

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Relay Contest

RELAYS - 5 minutes per relay – 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(s) and will need to fill out the top. The proctor will hand out a strip of paper to each person. These need to be face down on your desk until it is time for the relay to start. 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 your answer. However, when person #1 figures out his/her problem, he/she will record ***just his/her final answer*** *on the answer sheet and pass only the answer sheet back to the person behind. This continues until person #4 puts an answer on the answer sheet and gives it to the proctor. A correct answer from person #1, #2 and #3 is worth 1 point each. A correct answer from person #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 put your teammate's answer that they pass back to you, and then you should be able to solve your question. Once the relay begins, turn over your strip of paper and* ***make sure you have the right person number.*** *Remember, no talking and remain facing forward to avoid being disqualified!*

	Relay #1	Answer
Person 1	What is the sum of 25 and 14?	39
Person 2	Find the result when TNYWG is divided by 13, then multiply your answer by the product of $\frac{1}{2}$ and 4.	6
Person 3	What is the perimeter in **feet** of a regular hexagon with side length TNYWG **inches**?	3 [feet]
Person 4	What is the result when TNYWG is multiplied by the product of the three smallest perfect-square counting numbers?	108
	Relay #2	Answer
Person 1	What is the result when 2011 is subtracted from ten thousand?	7989
Person 2	What is the remainder when TNYWG is divided by the number of ways to arrange the letters in CAT?	3
Person 3	What is the number of square units in the surface area of a cube with side length TNYWG units?	54 [sq units]
Person 4	How many **seconds** are left in an hour after TNYWG **minutes** have gone by?	360 [seconds]

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Final Score:

KEY

School Name_____Team #_____

Proctor Name_____Room #_____ Division: ____

Mental Math Contest

MENTAL MATH - 30 seconds per question – 25% of team score

PERSON 1 NAME:		**1 or 0**
1.1	What is the side length in feet of a square whose area is eighty-one square feet?	9 [feet]
1.2	Find the mean or average of the following set of numbers: three, two, two, five.	3
1.3	One-sixth of my forty-two cookies are chocolate. How many of my cookies are **not** chocolate?	35 [cookies]
1.4	Twice my number is fourteen less than four times my number. What is my number?	7
PERSON 2 NAME:		
2.1	My brother Donald and his sons Dan and Dennis took their two family dogs for a walk. What is the total number of human and dog feet that went on this walk?	14 [feet]
2.2	Find the product of seventeen times nine.	153
2.3	Express the fraction six over twenty-five as a decimal number.	0.24 or .24
2.4	Bart draws two cards from a standard deck and gets a pair of kings. How many different pairs could he have drawn?	6 [pairs]
PERSON 3 NAME:		
3.1	What is the largest counting number that will divide into 15, 35, 75, and 95 with no remainder?	5
3.2	What is twenty-five percent of forty-four?	11
3.3	Jamie adds two prime numbers and gets a 2-digit prime number as her answer. What is the smallest Jamie's answer could be?	13
3.4	In a certain addition pattern, the first number is eight, the second number is eleven, and the third number is fourteen. What is the sum of the fifth and sixth numbers of this pattern?	43
PERSON 4 NAME:		
4.1	What is the probability of rolling a multiple of three with one fair cubical die? Express your answer as a fraction in simplest form.	1/3
4.2	I have 10 **meters** of rope. Find the number of **centimeters** of rope that I have left after giving away 10 **centimeters** of rope.	990 [cm]
4.3	How many vertices or corners does a cube have?	8 [vertices]
4.4	A pentagon of perimeter 74 inches has sides of 17, 20, and 13 inches. What is the average length in inches of the remaining sides?	12 [inches]

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COLLEGE KNOWLEDGE BOWL ROUND #1 - SET 1

#	Problem	Answer
1	What is the name of the polygon with twice as many sides as a triangle?	hexagon
2	I have eight standard U.S. coins in my pocket. If I have no more than three of any type of coin, what is the smallest number of cents I could have in my pocket?	38 [cents]
3	What is the product of one times two times three times four times five?	120
4	Mark got scores on his five tests of 85, 95, 78, 95 and 76. What was the range of his scores?	19
5	In a jar of marbles, one out of every seven marbles is blue. If there are nine blue marbles in the jar, what is the total number of marbles in the jar?	63 [marbles]
6	How many zeros would it take to write the number of milligrams in 100 grams?	5 [zeros]
7	Find the sum of two-thirds and one-twelfth, and give your answer as a simplified fraction.	3/4
8	Lynne's cat Tigger gets fed four times a day. Tigger eats 3 ounces of cat food at 7 AM, at 11 AM, and at 1 PM, and five ounces of cat food at 6 PM. How many ounces of cat food does Tigger eat in a day?	14 [ounces]
9	A palindrome is a counting number that reads the same when its digits are reversed. A 3-digit palindrome is added to another 3-digit counting number to produce a sum of 871. What is the largest possible value of the palindrome?	767
10	Nicole counts backwards from 100 by eights. The first number she says is 100. What is the next number Nicole says that can be divided by 5 with no remainder?	60

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COLLEGE KNOWLEDGE BOWL ROUND #2 - SET 2

#	Problem	Answer
1	How many sides does a rhombus have?	4 [sides]
2	It takes 15 **minutes** for Janet to bathe one dog. At this rate, how many **hours** will it take Janet to bathe eight dogs?	2 [hours]
3	How many cups are in seven gallons?	112 [cups]
4	Julia cut a block of cheese into 16 equal parts. She used five parts for a salad and eight parts for macaroni. What reduced fraction of the block was not used?	3/16
5	A total of 105 cows and chickens are in a field. The ratio of cows to chickens is 2 to 3. How many cows are in the field?	42 [cows]
6	The quotient of 484 divided by 14 is the same as the quotient of what number divided by 7?	242
7	Every day, my cat sleeps half the time between midnight and noon, and two-thirds of the time between noon and midnight. How many hours does my cat sleep every **week**?	98 [hours]
8	Tom has a rectangular pool that measures 15 feet by 20 feet. He wants to put a one-foot wide border around the pool, including the corners. He will use square bricks measuring one foot on a side. How many bricks does he need?	74 [bricks]
9	Find the smallest counting number by which I could multiply 45 to get a product greater than one thousand.	23
10	I have twice as many nickels as quarters, half as many nickels as pennies, and as many dimes as quarters. If I have at least one quarter, what is the smallest number of cents I could have?	49 [cents]

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COLLEGE KNOWLEDGE BOWL ROUND #3 - SET 3

#	Problem	Answer
1	Alberta is facing due north. She turns 180 degrees to her right. What direction is she now facing?	south
2	Joe has 25 math problems to solve. Each day he gets faster at solving the problems. On day 1, he solves three problems. On day 2, he solves four problems. On day 3, he solves five problems. If this trend continues, on what day will Joe finish solving his problems?	[day] 5 [or the fifth day]
3	Annie walks forty-five **yards** from her home-room classroom to her music classroom, then walks back to her home-room classroom. How many **feet** does Annie walk?	270 [feet]
4	The product of 3 and 11 is how much greater than the sum of 3 and 11?	19
5	How many cents would one ounce of cereal cost if 24 ounces of cereal cost three dollars and sixty cents?	15 [cents]
6	Seventy percent of the 60 passengers on a bus got off in Spokane. How many passengers were left on the bus?	18 [passengers]
7	How many prime numbers less than 100 can be divided by 3 with no remainder?	1 [prime]
8	Lisa is 13 kilometers from her friend Barbara's house. Lisa walks toward Barbara's house at 6 kilometers per hour. After an hour and a half, how many kilometers away from Barbara's house is Lisa?	4 [km]
9	Alex draws two distinct lines and a circle. What is the largest possible number of points of intersection there could be in Alex's drawing?	5 [points]
10	For how many years from 1951 through 2011 was the product of the digits of the year less than 2?	16 [years]

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COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	Thirty cows and twelve chickens are in a field. How many cow feet and chicken feet are in the field altogether?	144 [feet]
2	The length of one diagonal in a rectangle is 11 inches. How many inches long is the other diagonal?	11 [inches]
3	Patty has 2011 cookies in a cookie jar. What is the smallest number of cookies that Patty could take out of the jar so that there would only be a 3-digit number of cookies left?	1012 [cookies]
4	The area of a rectangle is 27 square units. The length is three times the width. What is the number of units in the perimeter of the rectangle?	24 [units]
5	Find the product of zero point two and zero point seven, and give your answer as a decimal.	0.14 or .14
6	The sum of two numbers is 50. One number is six less than the other. What is the smaller of the two numbers?	22
7	What is seventy-five times fifty plus twenty-five times fifty?	5000
8	Each of Andy's steps is twenty-four inches. Each of Mandy's steps is eighteen inches. Andy and Mandy each take the same number of steps. When Andy has walked forty-four feet, how many feet has Mandy walked?	33 [feet]
9	A square number is the product of a counting number times itself. What is the sum of all **even** square numbers less than one hundred?	120
10	The Cat King has three purple, four red, five blue, and seven yellow socks in his drawer. He pulls his socks out of the drawer in his sleep. What is the smallest number of socks he could take out to be sure of getting socks of the same color for each of his four paws?	13 [socks]

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COLLEGE KNOWLEDGE BOWL ROUND #5 - SET 5

#	Problem	Answer
1	The average of four numbers is twenty. Three of the numbers are 18, 25, and 30. What is the fourth number?	7
2	Nina burns 2 calories a minute walking and 7 calories a minute while doing exercises. Nina walked for 11 minutes and did exercises for 15 minutes. How many calories did she burn?	127 [calories]
3	Andrew is four feet nine inches tall. Andrew's father is six feet tall. How many inches shorter than his father is Andrew?	15 [inches]
4	What day of the week will it be seventy-five days after Thursday?	Tuesday
5	What is the remainder when the product of the first three prime numbers is divided by the sum of the first three prime numbers?	0
6	The thirty students in a math class were asked to name their single favorite math topic. Ten said probability, 12 said arithmetic, and 8 said geometry. If a student in the class is selected at random, what is the probability that the student's favorite math topic is probability? Answer as a simplified fraction.	1/3
7	A car traveled at 36 miles per hour for 3 hours and 45 minutes. How many miles did the car travel?	135 [miles]
8	Allen takes a test where each right answer gets five points but each wrong answer takes 2 points away from his total score. There are 10 questions on the test. Allen gets half of them right and half of them wrong. How many points does Allen score?	15 [points]
9	Three times my number is twelve more than twice my number. What is seven less than my number?	5
10	Subtract three-fifths from five-fourths and give your answer as a reduced fraction.	13/20

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COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	Subtract 489 from 576.	87
2	The Smith chicken farm produces 396 eggs per day. How many dozen eggs are produced in a week at the Smith chicken farm?	231 [dozen]
3	What number falls half-way between 11 and 27?	19
4	Name the largest of the following four numbers: the fraction five over seven, the fraction thirteen over twelve, the decimal number one point seven, or the fraction thirty-three over fifteen.	33/15
5	How many different prime factors does 45 have?	2 [factors]
6	A spinner is divided into five equal sections. If two of the sections are blue and the rest of the spinner is yellow, what is the probability that the spinner will land on yellow? Give your answer as a simplified fraction.	3/5
7	To write the reversal of a number, write the digits of the number in reverse order. For example, the reversal of ninety-two is twenty-nine. What is the difference when six hundred forty-seven is subtracted from its reversal?	99
8	The ratio of boys to girls at today's contest is 12 to 13. If 144 boys are at the contest, how many girls are at the contest?	156 [girls]
9	Sarah was reading her favorite math book. She started on page thirty-one and read through page one hundred eleven, except that she skipped all pages whose page numbers had the digit "4" in them. How many pages did Sarah read?	64 [pages]
10	My 12-hour digital clock shows hours and minutes, but not seconds. It is now just 3:52 PM, and the sum of the digits on my clock is 10. How many minutes will go by until the next time the sum of the digits on my clock is 10?	14 [minutes]

"Math is Cool" Masters – 1010-11

Sponsored by: Numerica Credit Union

5th Grade – May 21, 2011

COLLEGE KNOWLEDGE BOWL ROUND - EXTRA

#	Problem	Answer
1	What is the sum of the five smallest prime numbers?	28
2	What simplified fraction of the letters in MONDAY (spelled M-O-N-D-A-Y) are also in SUNDAY (spelled S-U-N-D-A-Y)?	2/3
3	If two standard cubical dice are rolled, what is the probability that the same number is rolled twice? Answer as a reduced fraction.	1/6

"Math is Cool" Masters – 2010-11

5th Grade – May 21, 2011

School Name_____Team #_____

Proctor Name_____Room #_____Division: _____

Final Score:

KEY

First Score

(out of 20)

Team Multiple Choice Contest – 15 minutes – 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.***

Correct responses are worth 2 points, incorrect responses are worth -1 point and no response is 0 points.

DO NOT WRITE IN SHADED REGIONS

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

"Math is Cool" Masters – 2010-11

5th Grade – May 21, 2011

School Name_____Team #_____

Proctor Name_____Room #_____Div: _____

Final Score:

KEY

First Score

(out of 10)

Team Contest – Score Sheet – 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 a 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	1194.308		
2	489 [mL]		
3	195 [min]		
4	48		
5	17 [numbers]		
6	810 [min]		
7	DIN		
8	8		
9	[$] 4.70		
10	96		

"Math is Cool" Masters -- 2010-11

KEY

5th Grade – May 21, 2011

School:_____Team #_____

Proctor: _____ Room #_____Div _____

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
39	**6**	**3 [feet]**	**108**
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
7989	**3**	**54 [sq un]**	**360 [sec]**
1 or 0	1 or 0	1 or 0	2 or 0

"Math is Cool" Masters – 2010-11

5th Grade – May 21, 2011

School Name_____Team #_____

Proctor Name_____Room #_____Division: _____

Final Score:

First Score
(out of 20)

Team Multiple Choice Contest – 15 minutes – 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.***

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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 – 2010-11

5th Grade – May 21, 2011

School Name_____Team #_____

Proctor Name_____Room #_____Div: _____

Final Score:

First Score
(out of 10)

Team Contest – Score Sheet – 15 minutes – 30% of team score

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DO NOT WRITE IN SHADED REGIONS

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