"Math is Cool" Masters – 2010-11

Sponsored by: Western Polymer Corporation

6th 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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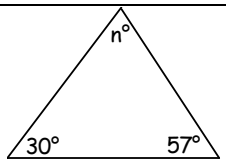
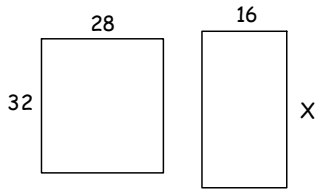
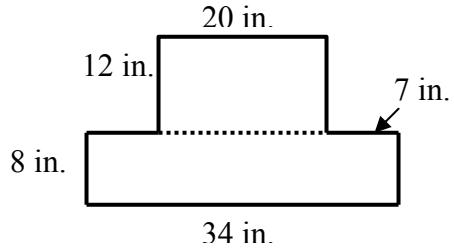
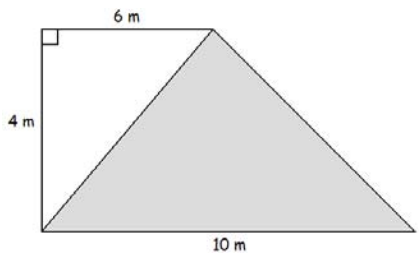
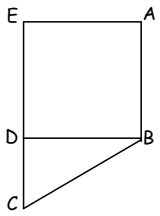
Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	Evaluate: $2\left(1+3\right)^2+3\cdot 3-10$
2	Order from least to greatest. Give your answer as three letters in the correct order. A = 75% B = 1.01 C = 0.40
3	Find the value of the following expression when $b=3$ and $m=6$: $b-\left(42m-10^2\right)$
4	Stacey enters her birdhouse in the arts-and-crafts competition at the fair. Thirty-two percent of the entries won blue ribbons, $\frac{2}{5}$ of the entries won red ribbons, and the rest won green ribbons. Which color ribbon was won most?
5	Solve for x in the following equation: $x-54=68$
6	Out of 1,650 total flights in the month of July, 86% were on time. How many flights in July were not on time?
7	Solve for y in the following equation: $\frac{13}{15}=\frac{52}{y}$
8	45% of what number is 63?
9	In May, a gallery painting was reduced from $90.00 to $88.50. In June, the price was reduced to $85.50. In July, it was $81.00, and then in August it was $75.00. If this pattern continues, what will the price be in September, in dollars?
10	Find the value of n. (Figure not drawn to scale.) 
11	The yearly "Math is Cool" retreat is 200 miles away from Tealah's house. When she was half way from her home to the retreat, she realized she forgot something. She went back home to get it, before continuing her drive to the retreat. How many miles in all did Tealah travel to get to the retreat?

12	Two birds are chirping. The red bird chirps every 4 seconds and the blue bird chirps every 6 seconds. If both birds start chirping at the same time, how many seconds will elapse before they chirp at the same time again?
13	The two rectangles shown have the same area (not drawn to scale). All lengths are given in centimeters. Find the value of X, in centimeters. 
14	Find the perimeter of this figure, in inches. All angles are 90°. Figure not drawn to scale. 
15	I have four red marbles and five yellow marbles. What is the probability that when I draw two marbles at random, they are both yellow? Answer as a simplified fraction.
16	Richard has a favorite counting number that is less than twenty. If all of its factors are added, the sum is twice Richard's favorite number. What is Richard's favorite number?
17	I have X **dollars**. Find the number of **cents** that I have left after giving away X **cents**. Give your answer in terms of X.
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 total animals (cats, dogs, and birds) are there?
19	Subtract negative thirteen from eight, then add negative two.
20	The notation b^n means the product of n copies of the number b multiplied together. If $x^x = 27$, what is x?
21	How many times must a piece of paper be folded exactly in half in order to divide it into 256 equal sections?
22	What percentage of the area of the trapezoid is shaded? If your answer is not a whole percent, answer as a mixed number percent. 

23	What is the area in square centimeters of quadrilateral ABCE if segment CD is 6 cm, ABDE is a square, and angle BCD is 45 degrees? 
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 five oranges by seven 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 180 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 area 18π square centimeters 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	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?

Challenge Questions: 3 points each	
31	Alice and Bob went to the Algebra Arcade to play math games. Together, they had $50 to spend. Alice spent 40% of her money and Bob spent 70% of his money. Together, they had $25.20 left. How many dollars did Alice have to start with?
32	Put the volumes of the following four figures in order of increasing size (smallest first). Your answer should be 4 letters in the correct order. (A) a cube of edge length 2 inches; (B) a cone of radius 1 inch and height 2 inches; (C) a cylinder of radius 1 inch and height 2 inches; (D) a sphere of radius 1 inch
33	Ruthie makes a list of all the prime numbers less than 100, in order of increasing size. How many different square numbers less than 200 could result from adding three consecutive numbers from Ruthie's list?

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	What is the difference in degrees between the larger and the smaller angles formed by the hands of an analog wall clock at 7:42 AM?
36	Give the letter or letters of all of the following statements that are true about the set of numbers $\{3, 12, 0, -21, 6\}$. If no statement is true, answer "none". (A) Exactly 4 of the 5 numbers are even. (B) Exactly 4 of the 5 numbers are positive. (C) Exactly 4 of the 5 numbers are greater than the mean of all 5 numbers. (D) Exactly 4 of the 5 numbers can be divided by 3 with no remainder. (E) Exactly 4 of the 5 numbers can be arranged to form an arithmetic sequence.
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	My Reversing Calculator reverses the digits of every counting number I enter. It then calculates correctly using the reversed digits, but reverses the answer before it displays it. I entered three 2-digit counting numbers, with a plus sign between the first two numbers and a minus sign between the second and third (that is, $\_\ \_ + \_\ \_ - \_\ \_ = ?$, where each blank indicates a digit). The displayed answer was 49. What is the largest the correct answer could have been?
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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6th Grade – May 21, 2011

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 3 batches of Brad's gingerbread? A) 72 B) 384 C) 576 D) 288 E) 192
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
4	The perimeter of a rectangle is 54 inches. One side of the rectangle is 13 inches. What is the area of the rectangle, in square inches? A) 702 B) 533 C) 729 D) 182 E) Answer not given
5	What fraction of a circle with a diameter of 18 units has an area equal to the area of a circle with a diameter of 6 units? A) $\frac{1}{9}$ B) $\frac{1}{3}$ C) $\frac{1}{27}$ D) $\frac{\pi}{6}$ E) $\frac{1}{3\pi}$
6	When the two shortest sides of a right triangle are 6 and 8, the longest side is 10. When the two shortest sides of a right triangle are 5 and 9, the longest side is: A) < 10 B) 10 C) > 10 and < 11 D) ≥ 11 and < 12 E) ≥ 12

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), how many miles from L.A. will the second plane be when the two planes meet? A) 1395 B) 406 C) 496 D) 960 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	Assume that Biff and Eho can each pay their separate exact bills entirely in nickels. They each (separately) put their nickels on the counter in stacks. Every stack on the counter has the same number of nickels. If each stack has the most nickels possible, how many stacks of nickels are on the counter in all? A) 17 B) 13 C) 11 D) 22 E) Answer not given

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6th Grade – May 21, 2011

Team Contest

1	Find the value of: $17 - 3^2 + 14 \times \frac{1}{2}$
2	What is the sum of the next two numbers in the following sequence? 1, 4, 9, __, __
3	A cubic number results when three copies of a counting number are multiplied together. For how many different dates (with the month written as a number; eg, July 4th as 7/4) are both the month and the day cubic numbers?
4	If $A@B = (A \times B) - \frac{A}{B}$, find $(12@3)@2$.
5	How many 2-digit counting numbers are there for which the tens digit and units (ones-place) digit differ by no more than 1?
6	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?
7	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 $\underline{a}$ stands for. $\underline{a}78 + 6\underline{b}6 + 15\underline{c} = 1\underline{d}38$
8	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?
9	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?
10	Three married couples stand in line to buy lemonade. For each couple, the wife is somewhere ahead of her husband in the line, but is not necessarily next to him. In how many orders can the 6 people stand in line?

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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	If $\frac{10}{x} = \frac{25}{30}$, what is x?	[x=] 12
Person 2	How many counting numbers less than 100 are multiples of TNYWG?	8 [numbers]
Person 3	When I multiply my number times TNYWG, I get a result equal to the sum of negative twelve and positive sixteen. What is my number?	1/2
Person 4	Find the result when the product of 40 and $\frac{1}{8}$ is divided by TNYWG.	10
	Relay #2	Answer
Person 1	How many 3-digit counting numbers can be written by making different arrangements of two 4s and one 7?	3 [numbers]
Person 2	How many minutes are in TNYWG days?	4320 [minutes]
Person 3	Lianne rolls X standard cubical dice. When she multiplies the numbers on the tops of the X dice, she gets TNYWG. Find the smallest possible value of X.	[X=] 5 [dice]
Person 4	Coach Gridiron is trying to organize his football players in a rectangular pattern for practice. If he puts 6 players in each row, he has 4 players left without a complete row. If he puts 25 players in each row, he has TNYWG players left without a complete row. If he puts 13 players in each row, he has a complete grid with nobody left over. Find the smallest number of players Coach Gridiron could have.	130 [players]

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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	One-sixth of my forty-two cookies are chocolate. How many of my cookies are **not** chocolate?	35 [cookies]
1.2	Find the median of the following set of numbers: one, two, five, four, ten, two.	3
1.3	Convert the fraction twenty-four over five to a decimal.	4.8
1.4	Twice my number is fourteen less than four times my number. What is three times my number?	21
PERSON 2 NAME:		
2.1	Find the product of seven times nine hundred ninety-nine.	6993
2.2	Bart draws two cards from a standard deck and gets a pair of face cards (that is, two cards with the same value, either Jack, Queen, or King). How many different pairs could he have drawn?	18 [pairs]
2.3	Solve for X, given that two X minus three equals seventeen.	[x=] 10
2.4	A forty-pound bag of rice costs six dollars. At this price, find the cost in **cents** of one pound of rice.	15 [cents]
PERSON 3 NAME:		
3.1	How many factors does ten have?	4 [factors]
3.2	A game costs twelve dollars before tax. If the tax is ten percent of the price, what is the total cost in dollars of the game plus tax?	[$] 13.20
3.3	What is the product of the four smallest **odd** counting numbers?	105
3.4	I have nine coins worth a total of 55 cents. If I take out one of these coins at random, what is the probability that it will be a dime?	2/9
PERSON 4 NAME:		
4.1	Find the probability of rolling a sum of three with two fair cubical dice.	1/18
4.2	What is the number of units in the edge length of a cube if the total length of all the edges of the cube is forty-eight units?	4 [units]
4.3	The sum of two numbers is zero point four. One number is zero point sixteen. What is the other number? Answer as a decimal.	0.24 or .24
4.4	Find the sum of all positive multiples of 5 less than one hundred.	950

"Math is Cool" Masters – 1010-11

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	How many pounds are in three tons?	6000 [pounds]
2	Find the smallest counting number greater than 100 that when divided by 7 has a remainder of 3.	101
3	If the length of one side of a rhombus is 9 units, what is the number of units in the perimeter of the rhombus?	36 [units]
4	Convert the mixed number three and five-sixteenths to an improper fraction.	53/16
5	How many distinct ways can you arrange the letters in the word CHEESE, spelled C-H-E-E-S-E?	120 [ways]
6	Each of Larry's steps is twenty-four inches. Each of Mary's steps is eighteen inches. Larry and Mary each take the same number of steps. When Larry has walked 128 feet, how many feet has Mary walked?	96 [feet]
7	How many more faces does a triangular prism have than a triangular pyramid?	1 [face]
8	If the probability that Rick will win a certain race is twelve over thirty-five, what are the odds against Rick winning? Express your answer in the form "A to B".	23 to 12
9	For how many years from 1950 through 2011 was the sum of the digits of the year greater than fifteen?	49 [years]
10	A candle was lit at 4:30 PM. It burns down at a steady rate of one-third of an inch per hour. At 6 PM, the candle was six inches tall. If the candle continues to burn, at what time will it be half of its original height?	2:15 AM

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COLLEGE KNOWLEDGE BOWL ROUND #2 - SET 2

#	Problem	Answer
1	John is four inches shorter than Henry. Henry is six feet three inches tall. How many **inches** tall is John?	71 [inches]
2	What is the greatest common factor of 45, 81, and 99?	9
3	Tealah is flying from London to New York. Her flight leaves London at 8:00 PM. The time in New York is five hours earlier than it is in London. The flight takes 8 hours. What time will it be in New York when her plane lands?	11 PM
4	What is the sum in degrees of the interior angles of a quadrilateral?	360 [degrees]
5	Tony can read 48 pages per hour. At this rate, what fraction of a page can Tony read in one minute?	4/5
6	What is the product of the square of eight times the square of one-fourth?	4
7	How many cubes one inch on each edge would it take to make a cube six inches on each edge?	216 [cubes]
8	If X is greater than negative eight and less than eleven, find the sum of all integer values of X.	27
9	A wicked witch has a big vat containing 60 liters of 25% poison. However, she wants to make the poison twice as strong. How many liters of 75% poison solution should she add to her vat to increase the poison concentration of the solution in the vat to 50%?	60 [liters]
10	My 12-hour digital clock shows hours and minutes, but not seconds. It is now just 12:52 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?	17 [minutes]

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COLLEGE KNOWLEDGE BOWL ROUND #3 - SET 3

#	Problem	Answer
1	In a certain game, there are three times as many castles as there are kings. There are seven times as many princesses as kings. If there are twelve kings, what is the sum of the number of castles and princesses?	120
2	What is the sum of all **odd** square numbers less than one hundred?	165
3	A bee flies at one yard per second. At this rate, how many feet will the bee fly in half a minute?	90 [feet]
4	Write the fraction ninety-three over twelve as a simplified mixed number.	$7\frac{3}{4}$
5	Find the number of square units in the surface area of a rectangular prism with dimensions of 2, 5, and 12 units.	188 [sq units]
6	What is the sum of all the prime numbers on the following list? 8, 13, 15, 21, 23, 27	36
7	Last week, it rained two inches on Saturday, and twice that much on Sunday. On every day Monday through Friday, it rained one-fifth of the total amount of the rain on Saturday and Sunday combined. What was the total number of inches of rainfall last week?	12 [inches]
8	How many more factors does sixty-four have than sixty-three?	1 [factor]
9	Amy puts her collection of dimes into envelopes holding 19 dimes each. She has 11 dimes left over. What is the least number of dimes Amy could have if she has at least ten dollars worth of dimes?	106 [dimes]
10	I am thinking of a counting number divisible by both 7 and 3 with no remainder. If $\frac{2}{5}$ of my number is greater than 30, what is the smallest my number could be?	84

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COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	What is the product of the first two prime numbers larger than 10?	143
2	Joe bought four items with a mean cost of thirty dollars. The first three items cost twenty-five dollars, thirty-eight dollars, and forty dollars. How many dollars did the fourth item cost?	17 [dollars]
3	What number is three-eighths of 40?	15
4	Ian bought a round pizza with a radius of 20 inches and a constant depth of one inch. If he and his friends eat 100 pi cubic inches of the pizza, what is the number of cubic inches in the volume of the pizza that is left?	300 pi [cubic inches]
5	What is the least common multiple of 27, 28, and 30?	3780
6	Louisa pours one pint plus one quart of water into an empty one-gallon jar. How many more **cups** of water will it take to fill the jar?	10 [cups]
7	Each side of a rectangle is a whole number of inches. If two sides of this rectangle add up to 8 inches, what is the smallest possible perimeter of the rectangle, in inches?	10 [inches]
8	Arthur was reading his favorite story about the Knights of the Hexagonal Table. He started on page 29 and read through page 100, except that he skipped all pages whose page numbers had the digit "3" in them. How many pages did Arthur read?	56 [pages]
9	What is the degree measure of my angle if the supplement of my angle is three times the complement of my angle?	45 [degrees]
10	Three times my number is twelve more than seven times my number. What is two less than five times my number?	-17

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COLLEGE KNOWLEDGE BOWL ROUND #5 - SET 5

#	Problem	Answer
1	How many prime numbers less than fifty are divisible by seven with no remainder?	1 [prime]
2	The average of two thousand eleven and my number is the same as the average of one thousand sixty-four and one thousand. What is my number?	53
3	The wool from 15 sheep can fill one and a half mattresses. At this rate, it would take the wool from how many sheep to fill six mattresses?	60 [sheep]
4	During the period from 10 AM Monday until 10 AM the next day, fifteen and a half inches of snow fell. On average, how many inches of snow per hour fell during this period? Answer as a decimal to the nearest hundredth of an inch.	0.65 [inches]
5	Molly subtracts the smallest factor of 64 from the largest factor of 64, then adds the median of all the factors of 64. What is the result of Molly's calculations?	71
6	Nick counts backwards from 100 by sevens. The first number he says is 100. What is the next number Nick says that can be divided by five with no remainder?	65
7	I paid eighty-eight dollars for two math textbooks. One of the books cost sixty-two dollars more than the other book. How many dollars did the cheaper book cost?	13 [dollars]
8	A palindrome is a counting number that reads the same when its digits are reversed. Anna adds two different 3-digit palindromes and gets a sum that is also a 3-digit palindrome. What is the largest possible value of the smaller of the two palindromes she added?	494
9	In quadrilateral ABCD, angle ABC and angle CDA are equal. The degree measure of angle DAB is three times the degree measure of angle BCD. If angle DAB is 150 degrees, what is the degree measure of angle ABC?	80 [degrees]
10	Greta is adding all the positive multiples of 3, starting with 3 and going in order. When Greta first reaches a sum that is a multiple of 12, how many numbers has she added?	7 [numbers]

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6th Grade – May 21, 2011

COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	Willy bought seven games for seventy dollars. At this price, how many games could he buy for two hundred dollars?	20 [games]
2	Convert the fraction seventeen over twenty-three to a decimal rounded to two decimal places.	0.74
3	How many threes would you have to add together to get a sum bigger than fifty?	17 [threes]
4	Rhonda's bird feeder is filled with four and one-half cups of seed. If the birds eat two and three-fourths cups of seed, how many cups of seed are left in the feeder? Answer as a simplified improper fraction.	7/4
5	What is the sum of the exponents in the prime factorization of 168?	5
6	When forty-two is multiplied by ten, the product is how much less than five thousand?	4580 [four thousand five hundred eighty]
7	There are only red and blue marbles in a jar holding more than ten marbles. The probability is two-thirds that if I draw one marble at random, it will be red. What is the smallest possible number of blue marbles there could be in the jar?	4 [blue marbles]
8	Danny took a math test with thirteen questions. Each right answer scores 4 points, and each wrong answer takes away two points from Danny's total score. Danny answered all questions and scored 28 points. How many of Danny's answers were wrong?	4 [answers]
9	How many zeros would it take to write in decimal form the number of kilograms equal to one milligram? Do not count any zero to the left of the decimal point.	5 [zeros]
10	Alice has a rectangle with whole-number side lengths and area 24 square units. Bob makes a rectangle with the same base as Alice's but whose height is 2 units more. What is the largest possible area of Bob's rectangle, in square units?	72 [sq inches]

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6th Grade – May 21, 2011

COLLEGE KNOWLEDGE BOWL ROUND - EXTRA

#	Problem	Answer
1	Subtract the fraction ten over seventeen from the fraction thirty-three over thirty-four and give your answer as a reduced fraction.	13/34
2	Find the value of four times the square of X, plus two times X, minus 3, when X equals one-half.	-1
3	Waldo bought 5 pounds of jellybeans for forty dollars. At this price, what fraction of a pound of jellybeans would Waldo be able to buy for one dollar?	1/8

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6th 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	D		
5	A		
6	C		
7	A		
8	C		
9	C		
10	A		

"Math is Cool" Masters – 2010-11

6th 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	15		
2	41		
3	6 [dates]		
4	48		
5	26 [numbers]		
6	DIN		
7	8		
8	[$] 4.70		
9	96		
10	90 [orders]		

"Math is Cool" Masters -- 2010-11

KEY

6th 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
[x=] 12	**8 [numbers]**	**1/2**	**10**
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
3 [numbers]	**4320 [min]**	**[x=] 5 [dice]**	**130 [players]**
1 or 0	1 or 0	1 or 0	2 or 0

"Math is Cool" Masters – 2010-11

6th Grade – May 21, 2011

School Name_____Team #_____

Proctor Name_____Room #_____Division: _____

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(out of 20)

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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

6th Grade – May 21, 2011

School Name_____Team #_____

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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			