"Math is Cool" Championships – 2010-11

Sponsored by:

6th Grade – February 11, 2011

Individual Contest

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by all 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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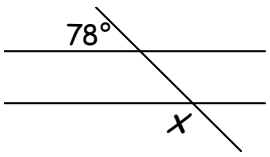
Individual Contest

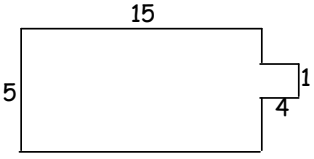
Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	What is the remainder when 487 is divided by 7?
2	What is the difference between 10203 and 9763?
3	Give the letter of the largest value (A, B, C, or D): $A = 0.404$ $B = 0.40404\ldots$ $C = 0.440$ $D = 0.40$
4	What is 1 more than the product of 134 and 15?
5	How many sides does a hexagon have?
6	Choose the correct one of these three symbols $(>, <, =)$ to go in the blank between the two numbers: 2.4×10^2 ___ 0.32×10^2
7	What is the median of the following numbers? 45, 72, 23, 89, 43, 53, 64
8	Rosemary went to the store to pick up some groceries for dinner. Her drive to the store took 17 minutes. Once she arrived, it took her 24 minutes to buy all of her groceries and get back into her car. On her drive back home, Rosemary got stuck in traffic, which added 5 minutes to her return drive. For how many minutes was Rosemary gone?
9	What is the sum of 15.45 and 7.23? Give your answer as a decimal.
10	The local pet store has 12 fish tanks, with 10 fish in each tank. What is the total number of fish in the store?
11	"Twenty-three" written in standard form is 23. Write "ten thousand, five hundred forty-nine" in standard form.
12	Tealah was paid 12¢ per egg that she sold at the flea market (see table below). How much, in dollars, did she make during the spring?
13	Jane is weaving a striped rug. She starts with a green stripe, followed by blue, then white, then purple. If she continues this pattern, what color will the twentieth stripe be?

Number of eggs sold	
Fall	256
Winter	175
Spring	305
Summer	423

14	Frank goes to a concert with $35.00 to spend. He purchases a t-shirt for $15.00, a keychain for $2.00, and a program for $7.00. How many dollars does Frank have left at the end of the concert?
15	What number is fourteen more than the product of eight and eleven?
16	Evaluate and write in scientific notation: $\left(3\times10^4\right)+\left(4\times10^3\right)$
17	How many ways can you arrange the letters in the word "HAPPY"?
18	My favorite number plus 15 is 38. What is 7 less than my favorite number?
19	Harshini's last day of school before summer vacation was June 6th, and school started again for her on September 9th. During the summer, she went to a summer camp that was 10 days long, another camp that was 3 weeks long, and another camp that was 3 days long. How many days of summer vacation did she have when she wasn't at a camp?
20	What is the units digit of 3^{21}?
21	Find the value of the expression $9x^2+7x-5$ when $x=-1$.
22	I roll two fair six sided dice. What is the probability that the sum of the numbers is a multiple of 3? Answer as a reduced fraction.
23	What is the measure of angle x, in degrees? 
24	What is the prime factorization of 72?
25	What is the number of degrees in each exterior angle of a regular 15-gon?
26	What is $\frac{3}{5}$ times 20% of 60% of 375?
27	Triangle ABC is similar to triangle DEF. If $\overline{AB}=4$, $\overline{BC}=7$, $\overline{CA}=9$, and $\overline{DE}=12$, how many units long is side $\overline{EF}$?
28	I'm drawing three cards from a deck, without replacement. What is the probability that I get a king, then a red queen, then a jack? Answer as a reduced fraction.
29	What is the volume in cubic meters of a rectangular prism with sides of length 5 m, 7 m, and 3 m?
30	Find the median number in this stem-and-leaf plot. 0| 1 1 3 4 6 7 1| 1 3 6 8 9 2| 0 9 3| 2 3 3 3 4 6 7 4| 4 4 5 6 7

Challenge Questions: 3 points each

31	Adding 18 to my number makes a whole-number sum that is divisible by both 3 and 5. My number is greater than 150. What is the smallest my number could be?
32	A circus has 7 identical gymnasts who are all exactly 6 feet tall. They stand on top of each other, each with their feet on the previous person's shoulders. A stack of 3 gymnasts is 16 feet 8 inches tall. How many feet tall is a stack with all 7 gymnasts? If your answer is not a whole number, give it as a mixed number.
33	I'm building a dollhouse according to the floor plan shown. All corners are square. If each unit on the plan represents 3 inches, what will be the area in square inches of the floor of my finished dollhouse? 
34	When the base 10 number 2011 is written in base 2, what fraction of its digits will be 0?
35	A counting number is a palindrome if it remains the same when its digits are reversed. How many 5 digit palindromes have exactly two 3s among their digits?
36	The product of $8\underline{a}3$ times $\underline{b}8$ is $6\underline{c}\underline{b}\underline{c}\underline{a}$, where $\underline{a},\underline{b},\underline{c}$ stand for unknown digits. A letter represents the same digit wherever it occurs, but different letters do not necessarily represent different digits. Find the sum of $\underline{a}+\underline{b}+\underline{c}$.
37	Berta paints all of the edges of a white cube yellow. She then cuts the cube up into 125 unit cubes. How many of the unit cubes have some yellow paint on them?
38	Tina and Tammy are running to pick up trash on a playing field. They both start in the very middle of the 72-foot long field, and run in opposite directions toward the two ends of the field. Both run at a speed of 4 feet per second. They run for two seconds, then stop to pick up trash for one second, and so on. A butterfly flies between them at a rate of 6 feet per second, instantaneously changing direction each time it reaches one of them. When Tina and Tammy reach the ends of the field, how many feet has the butterfly flown?
39	From a bag containing 9 pennies and 6 dimes, some coins are stolen. After the theft, if two coins are removed from the bag without replacement, the probability that they will both be dimes is $\frac{1}{15}$. Find the value, in cents, of the coins that were stolen from the bag. Give all possible values.
40	My number-crunching calculator takes the last two digits of every whole number I enter and crunches them together into their average. If this average isn't a digit, it rounds to the nearest even digit (eg, "23" becomes 2 and "96" becomes 8). The calculator then calculates correctly with the crunched numbers, but crunches the result before displaying it. When I enter "758 + N", the displayed result is 13. What is the largest possible value of N?

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Team Multiple Choice Contest

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #1 THROUGH #4.

The table shows the prices at Pierre's Pie Palace. All pies are circular and one inch thick.

Diameter (inches)	Price
8	$16
10	$20
12	$27

1 What is the positive difference between the areas (in square inches) of the largest and the smallest size of pie?

A) 4π B) 20π C) 64π D) 80π E) Answer not given

2 Gertrudis, Tita, Pedro, Rosaura, and John Brown split a 10 inch pie. The ratio of the amount each person ate is 2:3:1:3:1, respectively. If the bill is split according to the portion each person ate, how much should Rosaura pay?

A) $3.00 B) $6.00 C) $8.00 D) $10.00 E) $20.00

3 How much more would pi cubic inches of pie cost for an 8-inch pie than for a 12-inch pie?

A) $11 B) $0.11 C) $\$\frac{\pi}{11}$ D) $0.73 E) $0.25

4 It is Tita's birthday and Rosaura buys her a 12-inch pie. But she cuts out a circle from the pie in order to place a candle in the middle. The remaining pie has an area of 20π square inches. What is the circumference of the candle, in inches, if it fits exactly in the cutout?

A) 4π B) 16π C) 12π D) 8π E) 10π

5 It takes Trung three days to eat an entire box of Cheerios. His parents do not let him eat Cheerios on Thursdays and Saturdays. How many weeks will it take him to finish 5 boxes of Cheerios if he starts eating them on Sunday?

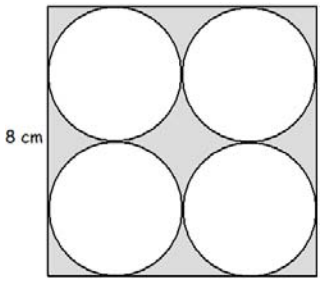
A) 1 B) 2 C) 3 D) 4 E) 5

6 What is the sum of the distinct (different) prime factors of 1001?

A) 19 B) 22 C) 25 D) 28 E) 31

USE THIS FIGURE FOR PROBLEM #7 AND PROBLEM #8.

A square with a side length of eight cm contains four congruent circles that fit perfectly in the square with no overlaps (as shown below).



7 The centers of the four circles are connected to form a new polygon. What is the ratio of the area of this polygon to the area of the original square?

A) $\frac{1}{8}$ B) $\frac{1}{2}$ C) $\frac{1}{4}$ D) $\frac{\pi}{8}$ E) Answer not given

8 What is the area of the shaded region, in square centimeters?

A) $64-16\pi$ B) $64-4\pi$ C) $32-16\pi$ D) $32-4\pi$ E) Answer not given

9 What is the sum of the numerator and the denominator in the fractional equivalent of 0.7272…?

A) 16 B) 17 C) 18 D) 19 E) Answer not given

10 The time is 6:40pm. What is the measure of the smaller angle between the two hands of an analog wall clock?

A) 10° B) 20° C) 40° D) 60° E) 320°

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Team Contest

1	Find the sum of all multiples of 3 between 80 and 100.
2	A rectangle has one side of length 10 inches. The length and width of this rectangle differ by 3 inches. What is the difference, in square inches, between the largest and smallest possible area of this rectangle?
3	Allison has twice as many marbles as Bill had before he gave 10 marbles to Charlene. Charlene now has 4 more marbles than Bill has now. If Charlene and Bill together now have 36 marbles, how many marbles does Alison have?
4	The Mariners beat the Royals by 3 runs. If the total number of runs scored in the game was less than 13, what is the largest number of runs the Mariners could have scored?
5	Ridley says, "One-third of my number is greater than three-fourths of my number." Give the letter(s) of all the following statements that must be true. If no statement must be true, answer "none". A) If what Ridley says is true, Ridley's number is 0. B) If what Ridley says is true, Ridley's number is a fraction less than 1. C) If what Ridley says is true, twice Ridley's number is greater than four times Ridley's number. D) What Ridley says cannot be true.
6	Ten apples are distributed among Amy, Ben, Corin, and Dora such that Amy gets at least two, and Corin and Dora get at least one each. If Ben gets at least as many apples as all the others put together, how many ways can the apples be distributed?
7	Amanda wrote a 20-page story that she printed out on 10 double-sided sheets of paper. She numbered the pages 1 though 20. Her little brother took one of the sheets and hid it. If the sum of the remaining page numbers of Amanda's story is 179, what is the larger page number on the missing sheet of paper?
8	The reversal of an integer is the number that has the same digits in reverse order. I choose two 2-digit positive integers which are reversals of one another. When I add them, their sum is 143. How many different sets of integers could I have chosen?
9	Put the following four values in order from smallest to largest. Your answer should consist of 4 letters in the correct order. A = the whole number closest to the cube root of 2011 (NOTE: If $R^3 = N$, then R is called the cube root of N.) B = the greatest possible length of the third side of a triangle with sides of 5 and 12, if the perimeter is a whole number C = the area, in square units, of an equilateral triangle with side length 3 units D = the number of zeros it would take to write the number of milligrams in 840 kilograms
10	If 1 is added to every prime number less than 100, how many more of the resulting sums will be divisible by 4 than by 3? (If more of the sums are divisible by 3 than by 4, your answer will be negative.)

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6th Grade – February 11, 2011

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!*

	Practice Relay	Answer
Person 1	Find the area, in square units, of a square with a side length of 6 units.	36 [sq units]
Person 2	What is the square root of TNYWG?	6
Person 3	What is TNYWG times the fifth prime number?	66
Person 4	Take the prime factorization of TNYWG in standard exponential form, and find the sum of the exponents.	3
	Relay #1	Answer
Person 1	Find the volume, in cubic units, of a cube with an edge length of 4 units.	64 [cubic units]
Person 2	What is the square root of TNYWG?	8
Person 3	What is TNYWG plus two times six?	20
Person 4	How many counting numbers will divide into TNYWG without remainder?	6 [numbers]
	Relay #2	Answer
Person 1	By what number would you need to multiply $\frac{1}{2}$ to get a product of 3?	6
Person 2	TNYWG is a base of a trapezoid with an area of 54 square units. If the height of the trapezoid is 12 units, what is the number of units in the length of the other base?	3 [units]
Person 3	What is the volume in cubic units of a pyramid having a height of TNYWG and a square base with each side TNYWG?	9 [cubic units]
Person 4	Divide TNYWG by $\frac{3}{4}$. What percentage of this number is 3?	25 [%]

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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	Find the number of inches in the perimeter of a rectangle with side lengths of eight inches and one point five inches.	19 [units]
1.2	If this month is August, what month will it be two and a half years from today?	February
1.3	An ant at point 8 comma negative 3 on a coordinate grid moves five units right and three units down. As an ordered pair, give the coordinates of its new location.	$(13,-6)$
1.4	Katie has a 400 milliliter bottle that she wants to fill up with water. She has a 60 milliliter cup that she keeps filling and pouring into her bottle. When the bottle is full, how many milliliters of water will be left in Katie's cup?	20 [ml]
PERSON 2 NAME:		
2.1	Evaluate: 13 squared.	169
2.2	What is the sum of the first five ODD counting numbers?	25
2.3	There are 81 computers in a computer store, 36 of which are Macs. What fraction of the computers are Macs? Express the fraction in reduced form.	4/9
2.4	My brick weighs three pounds more than three-fourths of my brick. How many pounds does my brick weigh?	12 [pounds]
PERSON 3 NAME:		
3.1	What is the remainder when 68 is divided by 9?	5
3.2	"Sherlock Holmes" is a movie that last two and one-fifth hours. How many minutes long is this movie?	132 [min]
3.3	How many degrees are in the smaller angle between the two hands of a wall clock at 4 o'clock?	120 [°]
3.4	I have two stacks of checkers, one with 14 more checkers than the other stack. Altogether, I have 50 checkers. How many checkers are there in the smaller stack?	18 [checkers]
PERSON 4 NAME:		
4.1	As a reduced fraction, what is one-half plus one-fourth?	3/4
4.2	Simple Sarah starts on the seventh story of a sixty-story skyscraper. She scrambles up thirty-six stories and then slides down twenty-three stories. Which story is she finally standing on?	20 [th story]
4.3	How many pairs of prime numbers add up to 20?	2 [pairs]
4.4	Hannah loves to stargaze for hours at a time. Last week, she went out at 9:32 PM and came back at 4:37 AM the next morning. How many minutes less than nine hours did she stargaze?	115 [minutes]

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	Find the sum of one thousand eighty-four and two hundred fifty-six.	1340
2	How many diagonals can be drawn in a regular hexagon?	9 [diagonals]
3	Mary has 21 cookies. She gives two-thirds of her cookies to her little brother. How many cookies does Mary have left?	7 [cookies]
4	Find the area in square inches of a square with perimeter 24 inches.	36 [in^2]
5	How many yards are equal to 48 feet?	16 [yards]
6	Four students took a math test. The average score was 86 percent. Three of the students scored 78, 95, and 83 percent. As a percent, what score did the fourth student get?	88 [percent]
7	Mitchell has a half-eaten garlic cream pie. He eats one-third of the remaining pie. What fraction of the garlic cream pie is left?	1/3
8	What is the sum of the first twenty-one ODD counting numbers?	441
9	How many cubes one inch on an edge would it take to make a larger cube three inches on an edge?	27 [cubes]
10	An empty 500-gallon tank is being filled with soda at a rate of five gallons per minute. At the same time, Walter the Wonder Horse is drinking from the tank at three gallons per minute. How many SECONDS will it take for the tank to become completely full?	15,000 [sec]

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COLLEGE KNOWLEDGE BOWL ROUND #2 - SET 2

#	Problem	Answer
1	Evaluate 16 times 31.	496
2	A triangle has angles of 76 degrees and 52 degrees. What is the degree measure of the third angle?	52 [degrees]
3	In standard 52-card deck without jokers, how many cards are either red or aces, or both?	28 [cards]
4	Mr. Potatohead has just flipped seven heads in a row with a fair coin. As a reduced fraction, what is the probability that on his next two flips, he gets two heads?	1/4
5	Dr. Tang has a physics book, a math book, a chemistry book, and a copy of the Monster Book Of Monsters. How many ways he can he order these books on a book shelf?	24 [ways]
6	Seventeen more than three times my number is thirty-eight. What is my number?	7
7	Dongyang is a farmer. On his farm there are four-legged komodo dragons and two-legged chickens. If there are 32 legs and 10 heads, how many komodo dragons are there on Dongyang's farm?	6 [komodo dragons]
8	If the Least Common Multiple of a pair of numbers is 72 and the Greatest Common Factor of those same numbers is 4, then what is the product of the two numbers?	288
9	Find the midpoint between the points seven comma four and nine comma eight. Answer as an ordered pair, X comma Y.	8 comma 6
10	The sum of two distinct prime numbers less than 100 has a units digit of 5. How many different values are possible for the larger of these two prime numbers?	7 [values]

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COLLEGE KNOWLEDGE BOWL ROUND #3 - SET 3

#	Problem	Answer
1	What is the probability of rolling a 9 with one fair octahedral die?	0
2	The letters A, E, I, O, and U are vowels. What percent of the letters in the word **CALIFORNIA** are vowels? **CALIFORNIA** is spelled C-A-L-I-F-O-R-N-I-A.	50 [%]
3	Superman can lift 235 pounds by himself. When he is joined by Batman, they can lift 615 pounds together. How many pounds can Batman lift by himself?	380 [pounds]
4	According to Vegeta's power reader, Goku's power level is over 9000 but less than nine thousand five hundred forty-three. How many different integer values could Goku's power level be?	542 [values]
5	Amber has a phone texting plan that costs 45 dollars per month for the first 3000 texts, with a charge of 25 cents for each additional text. Amber uses 4000 texts this month. How much, in dollars, does Amber have to pay this month?	[$] 295
6	Each face of a cube has an area of 49 square inches. What is the volume of the cube, in cubic inches?	343 [in^3]
7	What is the least common multiple of 16 and 54?	432
8	A trapezoid has bases of three inches and five inches as well as a height of two inches. What is the area, in square inches, of this trapezoid?	8 [in^2]
9	One day David took a trip to Wall-E-Mart. He bought a Princess Pony diary for $12.50, a box of Scooby Doo pencils for $2.50, and a pack of Yu-Gi-Oh cards for $3.00. Ten percent tax is charged on the purchase. If he paid with a legal 30-dollar bill, how much, in dollars, should he get back from the cashier?	[$] 10.20
10	The cookie monster eats five cookies a minute from a cookie jar filled with 66 cookies. After two minutes the cookie monster is joined by Elmo, who also eats at a constant rate. Together they finish the rest of the jar in another seven minutes. How many cookies does Elmo eat per minute?	3 [cookies]

"Math is Cool" Championships – 1010-11

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6th Grade – February 11, 2011

COLLEGE KNOWLEDGE BOWL ROUND #4 - SET 4

#	Problem	Answer
1	What is six thousand four hundred fifty-two rounded to the nearest hundred?	6500
2	Mitchell has a jar filled with 4 green marbles, 9 blue marbles, and 7 red marbles. If Mitchell randomly picks a marble out of his jar, what is the probability that he draws a green marble? Answer as a reduced common fraction.	1/5
3	What is the sum, in degrees, of the interior angles of a hexagon?	720 [degrees]
4	What is the probability of rolling a sum of 7 or higher with 2 standard dice? Answer as a reduced common fraction.	7/12
5	Find the number of hours in a week.	168 [hours]
6	Jack has a special rectangle with side lengths of X inches and 2X inches. If the area of the rectangle is 72 square inches, what is its perimeter, in inches?	36 [inches]
7	There are 7 kids on a committee at Pullman High School. How many ways are there to make a subcommittee of 2 kids from the 7 committee members?	21 [ways]
8	A potato and a two bananas cost $2.50. Two bananas and three potatoes cost $4.50. In dollars, what is the total cost of one banana and one potato?	[$] 1.75
9	Three caribou equal two moose. Five moose equal two grizzlies. One grizzly is equal to three halibut. How many caribou are equal to 24 halibut?	30 [caribou]
10	If you round a certain whole number to the nearest million, the result is 6 million. How many whole numbers would fit this description?	1 million [numbers]

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COLLEGE KNOWLEDGE BOWL ROUND #5 - SET 5

#	Problem	Answer
1	When the fraction "nine over twelve" is reduced, what will be the sum of the numerator and the denominator?	7
2	Find the median of the following set of numbers: 12, 19, 7, 23, 3, 16, 14, and 33.	15
3	In degrees, what is the supplement of the complement of a 47 degree angle?	137 [degrees]
4	WALL-E has a ten percent chance of pronouncing EVA's name right on each attempt. On average, how many attempts will it take WALL-E to say her name right exactly five times?	50 [attempts]
5	Jenny wants to buy a dress that has been marked down to 60 percent of its starting price. The original price is twenty-five dollars. What is the sale price, in dollars?	[$] 15.00
6	Two counting numbers have a sum of 73 and a difference of 37. What is the larger of the two numbers?	55
7	How many pints are in a gallon?	8 [pints]
8	The first time Simon says "stand," six people stand up. The second time he says "stand," eighteen people stand up. The third time he says "stand," 54 people stand up. Following this same pattern, how many people will stand up when Simon says "stand" for the fifth time?	486 [people]
9	Calvin has a helicopter beanie, eight shirts, seven pairs of pants and three pairs of shoes. If an outfit is a hat or no hat, a shirt, a pair of pants and a pair of shoes, how many different outfits can he wear?	336 [outfits]
10	What is the greatest possible sum of the digits on a 24-hour digital clock that shows hours and minutes but not seconds?	24

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6th Grade – February 11, 2011

COLLEGE KNOWLEDGE BOWL ROUND #6 - SET 6

#	Problem	Answer
1	How many prime numbers are less than 20?	8 [primes]
2	In how many ways can you arrange the letters in the word MAGMAR, spelled M-A-G-M-A-R?	180 [ways]
3	What is the sum of the first five positive square numbers?	55
4	T-Pain is on a boat trip to Awesome Land. Two-thirds of the way there he realized he forgot his flippy-floppys and had to return back to grab them before completing the trip to Awesome Land. If his boat covered 700 miles in all, how many miles long is a one-way trip to Awesome Land?	300 [miles]
5	If Miya runs 5 kilometers in 40 minutes, then how many kilometers will she run in 2 hours?	15 [km]
6	Rick has a rectangular prism with side lengths of 3 inches, 4 inches, and 5 inches. What is the surface area of the prism, in square inches?	94 [sq. inches]
7	The product of two consecutive whole numbers is 132. What is the average of the two numbers? Express your answer as an improper fraction.	23/2 [or 23 over 2]
8	How many of the counting numbers one through six are factors of the number 1452?	5 [numbers]
9	In a book with pages numbered one through two hundred, how many total DIGITS are printed?	492 [digits]
10	Jimmy only eats Oreos in two 2 different varieties. One variety is single stuffed, with 2 cookie pieces and one layer of filling, and the other variety is triple layer Oreos with 4 cookie pieces and three layers of filling. On a lazy Sunday he eats a total of 32 cookie pieces and 20 layers of filling. How many triple layer Oreos did he eat?	4 [Oreos]

"Math is Cool" Championships – 1010-11

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6th Grade – February 11, 2011

COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	Tom is 3 years older than Jill. Six years ago the sum of their ages was 25 years. How many years old is Tom currently?	20 [years]
2	Chad is a driving a bus that currently has eight passengers. At the first stop, he picks up three passengers. At the second stop, he picks up two passengers and drops off four. At the third stop, he picks up six passengers and drops off four. How many passengers are on the bus after the third stop?	11 [passengers]
3	What is the volume in cubic centimeters of a square pyramid with a side length of 4 cm and a height of 9 cm?	48 [cubic cm.]

"Math is Cool" Championships – 2010-11

6th Grade – February 11, 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	B		
2	B		
3	E		
4	D		
5	C		
6	E		
7	C		
8	A		
9	D		
10	C		

"Math is Cool" Championships – 2010-11

6th Grade – February 11, 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	630		
2	60 [in^2]		
3	52 [marbles]		
4	7 [runs]		
5	C		
6	4 [ways]		
7	[page #] 16		
8	3 [sets]		
9	CDAB [in that order]		
10	1		

"Math is Cool" Championships -- 2010-11

KEY

6th Grade – February 11, 2011

School:_____Team #_____

Proctor: _____ Room #_____Div _____

PRACTICE RELAY

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
36 [sq units]	**6**	**66**	**3**
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
64 [cubic un]	**8**	**20**	**6 [numbers]**
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
6	**3 [units]**	**9 [cubic units**	**25 [%]**
1 or 0	1 or 0	1 or 0	2 or 0

"Math is Cool" Championships – 2010-11

February 11, 2011

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

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

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

Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	4		
2	440		
3	C		
4	2011		
5	6 [sides]		
6	>		
7	53		
8	63 [min]		
9	22.68		
10	120 [fish]		
11	10,549		
12	[$] 36.60		
13	purple		
14	[$] 11.00		
15	102		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	3.4×10^4		
17	60 [ways]		
18	16		
19	60 [days]		
20	3		
21	-3		
22	1/3		
23	102 [degrees]		
24	$2^3 \cdot 3^2$ [or equiv]		
25	24 [degrees]		
26	27		
27	21 [units]		
28	4/16575		
29	105 [m^3]		
30	29		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	162		
32	38 [feet]		
33	711 [in^2]		
34	2/11		
35	153 [palindromes]		
36	16		
37	44 [unit cubes]		
38	78 [feet]		
39	32, 45 [¢] [either order]		
40	890		
31-40 TOTAL:			

6^{th} Grade

"Math is Cool" Championships – 2010-11

February 11, 2011

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

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

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

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:			

6th Grade