"Math is Cool" Championships – 2004-05

Sponsored by: Institute of Electrical & Electronics Engineers

6th Grade – March 4, 2005

Individual Contest

GENERAL INSTRUCTIONS

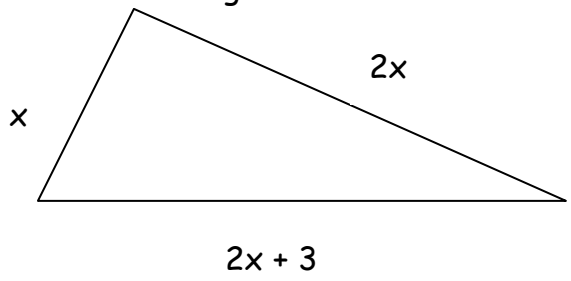
Good sportsmanship is expected throughout the competition by all involved. Bad sportsmanship may result in disqualification. Calculators may not be used on any portion of this contest. Express all non-integer answers as fractions unless stated otherwise or it is a problem dealing with money and in that case, a decimal answer should be given. For 5th and 6th grade, all fractions and ratios must be reduced. 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 B 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. This test is scored as a 1 or 0. Express all non-integer answers as fractions unless stated otherwise or it is a problem dealing with money and in that case, a decimal answer should be given. For 5th & 6th grade, make sure all fractions and ratios are reduced. Units are not needed except on questions that deal with time and, in that case, a.m. or p.m. is needed. If you choose to use units, you must use them correctly. Record your answers on the score sheet. No talking during the test.

Record all answers on the colored cover sheet.

1	Yesterday the high temperature was 84°F. Last night, the low temperature was 27°F. What was the range of temperatures yesterday, in degrees Fahrenheit?
2	What is the sum of the next 3 numbers in this pattern: 1, 1, 2, 3, 5, 8, 13…
3	The math team is buying tee shirts for themselves. They have to pay a one-time silk-screening fee of $20.00, and each shirt is $6.95. How much will 12 shirts cost, in dollars? [Express answer as a decimal.]
4	Using pennies, nickels, dimes, and quarters, what is the fewest number of coins necessary to make $0.68?
5	What is the sum of the number of sides in a decagon, a heptagon, and a hexagon?
6	What is the volume of a cylinder with base area of 4π and height of 12?

7	Evaluate: $\frac{(3+4\bullet 7-1)^2}{5}$
8	What number is one-third of the way from 2 to 14 on the number line?
9	What is the sum of the acute angles of an isosceles right triangle, in degrees?
10	Evaluate: $2^5+2^5+2^5+2^5+2^5$
11	Evaluate: (100 - 8)(100 + 8)
12	A snail began climbing up from the bottom of a well 13 feet deep. Each day it would crawl up 3 feet, but at night it would slip back half as far as it had crawled during the day. How many days will it take for the snail to reach the surface of the well and crawl out?
13	2005 is a non-leap year. What month and day of the month is the 150^{th} day?
14	What is the sum of the first ten prime numbers?
15	Write 9,545 in scientific notation.
16	A pyramid with a square base is aligned and glued to the top of a cube whose base is the same size. What is the sum of the number of faces, edges, and vertices in the resulting object?
17	How many diagonals are there in a decagon?
18	A photograph that is 8 inches by 10 inches is enlarged by 2 inches on each dimension. What percent increase in the area of the new rectangular photograph occurred?
19	Ted is two years younger than his sister, who is six times the age of their nephew. If the nephew will be ten in three more years, how old is Ted now, in years?
20	I stayed up late watching Shrek II, and didn't get to bed until 9:47 pm. If I get up when my alarm rings at 5:12 am, how long will I have slept, in hours? [Express your answer as a mixed number.]
21	A trapezoid has two bases, one of which is 3 times as long as the other. If the height of the trapezoid is 5 and the longer base is 9, what is the area of the trapezoid?
22	The perimeter of the triangle shown is 48. Find the value of x. 

23	Evaluate: $\sqrt{13^2 - 12^2}$
24	After 4 tests of 50 points each, Georgia has earned the following scores: 41, 45, 42, and 48. What is the smallest score she can get on her next 50-point test in order to have a mean average of 90% overall?
25	The probability that it will rain tomorrow is 2/3. The probability that I will remember my umbrella when I leave home tomorrow is 1/4. What is the probability that it won't rain tomorrow, but I will have my umbrella along with me anyway?
26	While on vacation, the Addams family drove 270 miles in $4\frac{1}{2}$ hours to see Cousin It. They took $5\frac{1}{2}$ hours to make the return trip. What was their average speed in miles per hour for the whole trip?
27	A recipe calls for 1 part sugar for every three parts flour. Dixie is making the recipe using $1\frac{1}{2}$ cups sugar. How much flour will she need, in cups? [Express your answer as a mixed number.]
28	Give the prime factorization of 1800.
29	What is the 20^{th} term in the following sequence that begins as: 1, 4, 9, 16… ?

Challenge Questions

30	A triangle has two sides that are 13 and 5, respectively. What are the possible lengths of the third side? Express your answer as an inequality.
31	In square inches, what is the surface area of a box whose dimensions are 8 inches wide by 10 inches long by 6 inches deep?
32	What is the midpoint of the line that extends from (3,6) to (7,-2)? [Express your answer as an ordered pair.]
33	Two complementary angles have a ratio of 5:1. What is the measure of the larger angle, in degrees?
34	What is the sum of the following sequence of numbers: 1, 2, 3, …, 50?
35	A piece of string 180 feet long is cut into 2 pieces. If the ratio of the lengths is 1:5, how long is the shorter piece of rope, in feet?
36	Find the area of the quadrilateral enclosed by the following points: (-1,-1), (0,2), (3,0), and (2,-1).
37	Kelly received a bag of jelly beans for her birthday. She gave 50% of them to her best friend. Of the remaining beans, her brother stole 1/3. She took the rest of the beans and after giving 6 to her sister, she ate the last 12 beans. How many beans were originally in the bag?
38	For her birthday, Clara wanted a balloon bouquet. If there are four colors to choose from and her bouquet will have four balloons, how many combinations of colored balloons are possible?
39	A turtle can crawl at a rate of 2 feet per minute. A cat can chase the turtle at a rate of 3 yards in 10 seconds. How much faster is the cat than the turtle, in feet per minute?
40	What is the product (in base 5) of the following: $2 \bullet 123_5$?

"Math is Cool" Championships – 2004-05

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6th Grade – March 4, 2005

Team Multiple Choice Contest

TEAM MULTIPLE CHOICE - 15 minutes

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.

The Hochstatter children, Amanda, David, Caleb and Grace, have to clean the house before their mother is expected to arrive home in two hours. Below is a list of the chores and the amount of time it takes to complete each one. All of the children clean at the same speed. Amanda is responsible for assigning the chores to each child.

Chore	**Completion time**
Vacuum hall and living room	14 minutes
Vacuum downstairs	23 minutes
Vacuum stairs	21 minutes
Vacuum kitchen/dining room	9 minutes
Clean downstairs bathroom	30 minutes
Clean kids' bathroom	27 minutes
Clean upstairs bathroom	24 minutes
Dishes	1 hour
Mopping	43 minutes
Wash windows	45 minutes
Water plants	7 minutes
Clean Grace's room	1 hour 37 minutes

Below is a chart of how all the above chores are assigned and the order in which they will be done. Everyone will do the chore that takes the longest first and the chore that takes the least time last.

Child	**Chore #1**	**Chore #2**	**Chore #3**	**Total Time**
Amanda	?	Downstairs bathroom	Vacuum downstairs	
David	?	?	?	
Caleb	?	Upstairs bathroom	Vacuum Stairs	
Grace	Grace's room	?	?	

Each question builds on the questions previous. In other words, the assumptions and answers from one problem extend to the others.

1	Nobody wants to clean Grace's room. So, Amanda elects Grace to clean her own room and will assign two more jobs to Grace out of the choices given below that Grace can complete before Mom is expected to get home. Which combination of chores will Amanda assign to Grace? I. Vacuum living room & hall II. Vacuum stairs III. Vacuum downstairs IV. Water plants A) I then II B) II then III C) III then IV D) I then IV E) III then IV
2	Caleb wants to watch Spongebob in an hour and a half. Amanda assigns the chores and she wants Caleb to be able to watch Spongebob, so what job can he be assigned to work the longest and still be able to catch his show? A) Wash windows B) Mopping C) Kid's bathroom D) Downstairs bathroom E) Answer not given
3	David refuses to wash the windows and do the dishes. Since Amanda tries to please everyone, what three jobs would Amanda assign to him? A) Mopping, kid's bathroom, water plants B) Mopping, kid's bathroom, vacuum living room and hall C) Kid's bathroom, vacuum living room and hall, water plants D) Vacuum kitchen/dining room, kid's bathroom, water plants E) Answer not given
4	Amanda realizes that she has a 500 word report due for History the next day. Being a slow typist, she types 25 words per minute. How long will it take her to complete her chores and her homework? A) 104 min B) 124 min C) 20 min D) 133 min E) Answer not given
5	Grace doesn't do a very good job vacuuming so David has to redo her vacuuming job after she is done. If David does her vacuuming job after he is done with his chores, how much time does David have left until his mom is expected to arrive home? A) 41 min B) 18 min C) 27 min D) 25 min E) Answer not given
6	Grace asks the other kids to help clean her room. Suppose they agreed on another occasion where they weren't concerned about time constraints. How long would it take the four kids to clean her room together? A) 1 hr 37 min B) 48 $\frac{1}{2}$ min C) 24 $\frac{1}{4}$ min D) 32 1/3 min E) Answer not given
7	The super speedy mom misses her children and arrives home 20 minutes early. What will she find Amanda doing assuming Amanda takes no breaks from her duties? A) Downstairs bathroom B) Vacuuming downstairs C) Typing her history report D) Dishes E) Watching Spongebob with Caleb
8	Super Speedy Mom can do all the chores in half the time it takes her children. How long would it take her to complete all the chores herself? A) 2 hrs B) 3 1/3 hrs C) 4 $\frac{1}{2}$ hrs D) 6 2/3 hrs E) Answer not given
9	If the kids get paid five dollars an hour, how much total money will be given to the kids assuming they only do their assigned chores once? A) $30.00 B) $32.25 C) $33.33 D) $36.00 E) Answer not given

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Team Contest

TEAM TEST - 15 minutes

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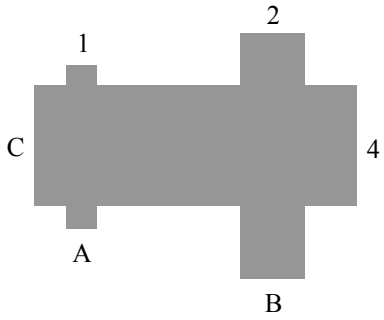
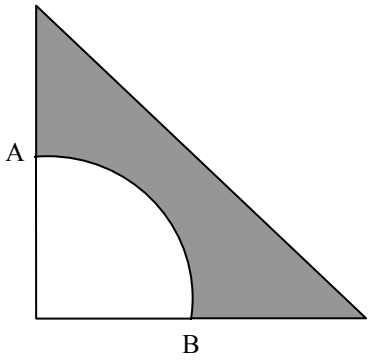
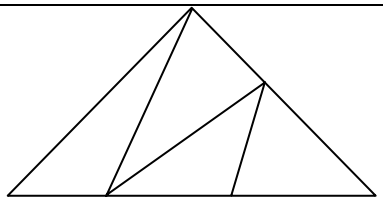
1	A taxi charges $3.00 per trip plus $0.50 for each quarter of a mile traveled. If a 15-minute trip costs $19 in all, what is the average speed of the taxi, in miles per hour, for that trip?
2	Jasmine removes face cards (jacks, queens, or kings) from a standard deck of 52 cards until the number of cards remaining is a prime number. Then she removes additional face cards until the number of remaining cards is again a prime number. Find the largest possible number of kings remaining in the final reduced deck.
3	Three rectangles intersect at right angles as shown. If rectangle A is 1 by 7 cm, rectangle B is 2 by 10 cm, and rectangle C is 11 by 4 cm, what is the total shaded area, in square cm? 
4	How much does one math problem cost, in cents, if 90 math problems cost less than $83 but 23 math problems cost more than $21? Assume that the price per math problem is a whole number of cents, and is constant.
5	A town originally with 10,000 people has a 10% increase in population for each of four successive years. What was its population at the end of the four years?
6	The square root of 300 is between two consecutive integers, m and n. Find the sum of m + n.
7	Two contestants on a quiz show each draw one ball randomly from a bin of 500 balls, without replacement. The balls are numbered with consecutive positive integers (1-500), and each contestant wins a number of dollars equal to the square

	of the number drawn. The first contestant draws the number 193. What is the least positive number of dollars by which the winnings of the two contestants could differ?
8	David said, "I am thinking of a number. When you multiply 1/7 of my number by 1/9 of my number, you get my number." What is David's number?
9	An isosceles right triangle with leg length 8 inches encloses a quarter-circle as shown, where A and B are the midpoints of the legs of the triangle. In square inches, what is the area of the shaded region? Leave your answer in terms of π. 
10	How many triangles of any size can be made following the lines of the diagram? 

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6th Grade – March 4, 2005

Relay Contest

RELAYS - 5 minutes per relay

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	Evaluate: 184 + 242	426
Person 2	TNYWG/3	142
Person 3	TNYWG x 20	2840
Person 4	TNYWG/40	71
	Relay #1	Answer
Person 1	Evaluate: 2(40 + 3 – 6)	74
Person 2	TNYWG x 11	814
Person 3	What is the area of a square with a side length of TNYWG/74?	121
Person 4	What is the diameter of a circle with an area of (TNYWG x π)	22
	Relay #2	Answer
Person 1	Evaluate: 35/140 divided by 1/124	31
Person 2	(TNYWG + 4)/7	5
Person 3	What is the volume of a cube with a side length of TNYWG?	125
Person 4	Find the area of a triangle with a height of 16 and a base of TNYWG.	1000

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6th Grade – March 4, 2005

Final Score:

KEY

School Name_____Team #_____

Proctor Name_____Room #_____ Division: ____

Mental Math Contest

When it is time to begin, I will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not erase or cross out answers once you have written an answer down.*** *If there are eraser marks or crossed out answers, they will be marked wrong. Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds from the second reading of the question before another question is asked. The value of each question is a one or zero. Each student will be asked four questions, then another member of your team will come up.*

PERSON 1 NAME:		**1 or 0**
1.1	What is the product of 12 and 11?	132
1.2	What is the sum of the first four positive odd integers?	16
1.3	What is the probability of getting three heads on three consecutive flips of a fair coin?	1/8
1.4	What is the product of the first four primes?	210
PERSON 2 NAME:		
2.1	Evaluate 1024 divided by 128.	8
2.2	True or False: 387 is prime.	False
2.3	What is the area of a circle with diameter 12?	36π
2.4	What is one-third of one-half of one-fourth of 600?	25
PERSON 3 NAME:		
3.1	What is the least common multiple of 14 and 21?	42
3.2	Evaluate: 288 divided by 8.	36
3.3	If Josh has 3 quarters, 2 dimes, 1 nickel, and 4 pennies, how many cents does he have?	104 [cents]
3.4	Evaluate: 4 times x plus 4 if x is 2.	12
PERSON 4 NAME:		
4.1	What is the positive difference between 104 and 19?	85
4.2	If the circumference of a circle is 216 pi, what is the radius?	108
4.3	What is 3 times 3 times 3 times 3?	81
4.4	Two numbers sum to 71 and have a difference of 28. What is the larger number expressed as a decimal?	49.5

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6th Grade – March 4, 2005

Division 1

COLLEGE KNOWLEDGE BOWL ROUND #1

#	Problem	Answer
1	What is the side length of a rectangle with area 90 and the other side length of 5?	18
2	If you toss a coin and then roll one die, what is the probability that you will get a "heads" on the coin and a 2 or 3 on the die?	1/6
3	Joe rides his bike at a rate of 1 mile every 5 minutes. What is his speed in miles per hour?	12 [mph]
4	In the word "mathematics" what is the ratio of vowels to consonants?	4 to 7 or 4/7 or 4:7
5	Tom makes 5 out of 7 free throws when practicing basketball. If he shoots 91 free throws, how many would he expect to make?	65 [free throws]
6	The sum of a set of 8 pieces of data is 104. What is the mean average of the set of data?	13
7	School starts at 7:52 a.m. It takes Biff 18 minutes to drive to school. What time must he leave home in order to arrive at school 15 minutes before it starts?	7:19 a.m.
	Extra Problem – Only if needed	
8	What is the sum of the hundred thousands digit and the tens digit of 8 million, 7 hundred thirty-five thousand, 2 hundred fourteen?	8

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6th Grade – March 4, 2005

Division 1

COLLEGE KNOWLEDGE BOWL ROUND #2

#	Problem	Answer
1	What is the minimum number of sides a polygon can have?	3 [sides]
2	I am thinking of two numbers. The second number is seven more than 10 times the first number. The second number is 27. What is the first number?	2
3	The mean average of Biff's three test scores is 84. What is his new mean average after four tests if he receives a 100 on the 4th test?	88
4	A dog ages 7 years for every year a human ages. Amanda has a dog that was 14 years old in dog years when she was 5 years old. The sum of their ages was 19. When Amanda turns 8 years old, what will the sum of their ages be, in years?	43 [years]
5	How many numbers between 12 and 150 are divisible by 7?	20 [numbers]
6	A dairy farmer lowered the price of milk from $3.00 per gallon to $2.10. For $15.00, how many more gallons of milk could you buy now than before?	2 [gallons]
7	Jeff multiplied 4 different prime numbers together. How many different positive whole numbers are factors of this product?	16 [factors]
	Extra Problem – Only if Needed	
8	How many cups of water are in 3/4 of a gallon of water?	12 [cups]

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6th Grade – March 4, 2005

Division 1

COLLEGE KNOWLEDGE BOWL ROUND #3

#	Problem	Answer
1	What is the sum of the digits of 19 thousand, 3 hundred eighty-four after it has been rounded to the nearest hundreds?	14
2	I have a collection of 18 coins that are all nickels and quarters. The value of my coin collection is $2.90. How many nickels are in my collection?	8 [nickels]
3	What is the least common multiple of 18 and 12?	36
4	Sally went to the Smelly Lotion Store and bought some body lotion. The lotion was initially $10.00, but was marked down 20%. How much, in dollars, did Sally pay for the lotion if tax was 8%?	[$] 8.64
5	What is the sum, in degrees, of the interior angles of a pentagon?	540 [°]
6	What is the largest prime factor of 204?	17
7	The sum of two negative numbers is -8. The product of the same two numbers is 15. What is the smaller of the two numbers?	-5
	Extra Problem – Only if Needed	
8	How many ways can you arrange 6 different charms on a bracelet without a clasp?	60 [ways]

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6th Grade – March 4, 2005

Division 2

COLLEGE KNOWLEDGE BOWL ROUND #1

#	Problem	Answer
1	What is the sum of the first 14 positive odd numbers?	196
2	If Jane's first three test scores average 88, what must her score be on the last test to average 90 overall?	96
3	An isosceles right triangle with legs of length 9 has what area?	81/2
4	How long, in minutes, will it take me to drive 100 miles if I drive 40 miles per hour and stop for a 10 minute break after each hour of driving?	170 [min]
5	If I flip a fair coin three times in a row, what is the probability of getting at least 2 heads in a row?	3/8
6	Ann, Bob and Carl are all going to school. Ann leaves her house at 7:50am and walks 12 minutes to Bob's house and then they walk to Carl's house which is 5 minutes away. If Carl lives 15 minutes from school and they have to wait 8 minutes for Carl to get ready, what time do they arrive at school?	8:30 a.m.
7	The ratio of boys to girls in a class is 7 to 5. If 96 pieces of candy are divided fairly among the kids, how many pieces will the girls get in total?	40 [pieces]
	Extra Problem – Only if needed	
8	What is the probability of drawing a spade or a four from a standard deck of 52 cards?	4/13

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Division 2

COLLEGE KNOWLEDGE BOWL ROUND #2

#	Problem	Answer
1	Two sides of a triangle are 8 and 10 and all sides are integers. What is the difference between the largest possible value and the smallest possible value of the third side?	14
2	Two numbers add to 36. The larger one is five times the smaller, what is the smaller number?	6
3	Three angles of a quadrilateral measure 70, 70 and 120 degrees. What is the measure of the fourth angle, in degrees?	100 [deg]
4	What is the least common multiple of 8, 12 and 20?	120
5	If I write the integers from 1 to 100, how many times will I write a 5?	20 [times]
6	What is the value of x, if 3 times x plus 5 equals 5 times x plus 3?	1
7	How many distinct ways can the letters in H-A-W-A-I-I be arranged?	180 [ways]
	Extra Problem – Only if Needed	
8	What is the units digit (ones place) of 2 to the 100th power?	6

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Division 2

COLLEGE KNOWLEDGE BOWL ROUND #3

#	Problem	Answer
1	How many diagonals can be drawn in a pentagon?	5 [diag]
2	Using nickels, dimes and quarters – how many ways can you make 30 cents?	5 [ways]
3	What is area of a triangle with sides of lengths 8, 15 and 17?	60
4	I invested $100 and made 10% the first year, which I kept in the account. The second year I lost 5%, how much did I have at the end of the second year, in dollars?	[$]104.50
5	What is the sum of the number of corners and number of faces in a cube?	14
6	Two fair six-sided dice are rolled. What is the probability that the sum is even?	1/2
7	The product of two numbers is negative 24 and the sum is 5, what is the smaller number?	-3
	Extra Problem – Only if Needed	
8	How many numbers from 1 to 40 are multiples of 2 or 3?	27 [num]

"Math is Cool" Championships – 2004-05

6th Grade – March 4, 2005

Final Score: KEY

First Score

School Name_____Team #_____

Proctor Name_____Room #_____

STUDENT NAME_____Division: _____

Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	57 [°F]		
2	110		
3	[$] 103.40		
4	7 [coins]		
5	23 [sides]		
6	48π [un^2]		
7	180		
8	6		
9	90 [°]		
10	160		
11	9936		
12	8 [days]		
13	May 30		
14	129		
15	9.545×10^3		
16	34		
17	35 [diag]		
18	50 [% (inc)]		
19	40 [yrs]		
20	$7\frac{5}{12}$ [hr]		

	Answer	1 or 0	1 or 0
21	30 [un^2]		
22	9		
23	5		
24	49		
25	1/12		
26	54 [mph]		
27	$4\frac{1}{2}$ [cups]		
28	$2^3 \bullet 3^2 \bullet 5^2$		
29	400		
30	$8 < x < 18$		
31	376 [in^2]		
32	(5,2)		
33	75 [°]		
34	1275		
35	30 [feet]		
36	7 [un^2]		
37	54 [beans]		
38	35 [comb]		
39	52 [ft/min]		
40	$301_{[5]}$		

"Math is Cool" Championships – 2004-05

6th Grade – March 4, 2005

Final Score: KEY

First Score (out of 18)

School Name_____Team #_____

Proctor Name_____Room #_____

Division: _____

Team Multiple Choice Contest – Score 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	A		
3	E		
4	D		
5	C		
6	C		
7	B		
8	B		
9	C		

"Math is Cool" Championships – 2004-05

6th Grade – March 4, 2005

Final Score: KEY

First Score (out of 10)

School Name_____Team #_____

Proctor Name_____Room #_____

Div: _____

Team Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	32 [mph]		
2	3 [kings]		
3	59 [cm^2]		
4	92 [cents]		
5	14,641 [people]		
6	35		
7	[$] 385		
8	63		
9	$32 - 4\pi$ [in^2]		
10	7 [tri]		

"Math is Cool" Championships -- 2004-05

KEY

6th Grade – March 4, 2005

School:_____Team #_____

Proctor: _____ Room #_____Div _____

PRACTICE RELAY

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
426	**142**	**2840**	**71**
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
74	**814**	**121**	**22**
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
31	**5**	**125**	**1000**
1 or 0	1 or 0	1 or 0	2 or 0

"Math is Cool" Championships – 2004-05

Final Score:
KEY

Sponsored by: Institute of Electrical & Electronics Engineers

6th Grade – March 4, 2005

School Name: _____ Team #: _____

Proctor Name: _____ Room #: _____ Div: _____

Mental Math Contest

When it is time to begin, I will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not erase or cross out answers once you have written an answer down.*** *If there are eraser marks or crossed out answers, they will be marked wrong. Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds from the second reading of the question before another question is asked. The value of each question is a one or zero. Each student will be asked four questions, then another member of your team will come up.*

PERSON 1 NAME:		**1 or 0**
1.1	What is the product of 12 and 11?	132
1.2	What is the sum of the first four positive odd integers?	16
1.3	What is the probability of getting three heads on three consecutive flips of a fair coin?	1/8
1.4	What is the product of the first four primes?	210
PERSON 2 NAME:		
2.1	Evaluate 1024 divided by 128.	8
2.2	True or False: 387 is prime.	False
2.3	What is the area of a circle with diameter 12?	36π
2.4	What is one-third of one-half of one-fourth of 600?	25
PERSON 3 NAME:		
3.1	What is the least common multiple of 14 and 21?	42
3.2	Evaluate: 288 divided by 8.	36
3.3	If Josh has 3 quarters, 2 dimes, 1 nickel, and 4 pennies, how many cents does he have?	104 [cents]
3.4	Evaluate: 4 times x plus 4 if x is 2.	12
PERSON 4 NAME:		
4.1	What is the positive difference between 104 and 19?	85
4.2	If the circumference of a circle is 216 pi, what is the radius?	108
4.3	What is 3 times 3 times 3 times 3?	81
4.4	Two numbers sum to 71 and have a difference of 28. What is the larger number expressed as a decimal?	49.5