"Math is Cool" Masters – 2006-07

Sponsored by: IEEE – Central Washington Section

Geometry – January 13, 2007

Individual Contest

Tear this sheet off and fill out top of answer sheet on following page prior to the start of the test.

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 rounded to the nearest cent..*
  - *Express all rational, non-integer answers as reduced common fractions.*
- *All radicals must be simplified and all denominators must be rationalized.*
- *Units are not necessary unless it is a problem that deals with time and in that case, a.m. or p.m. 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 at the top of the sheet filled out.*
- *Tests will be scored as a 0 if answers are not recorded on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will 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 1 or 0. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute time warning.

"Math is Cool" Masters – 2006-07

Sponsored by: IEEE – Central Washington Section

Geometry – January 13, 2007

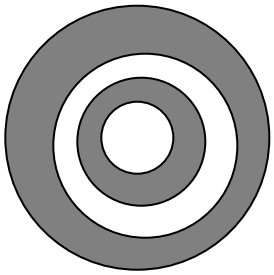
Individual Contest

1	What is the area, in square inches, of a circle with a diameter of 2 inches?
2	What is the next number in the sequence: $2, -\frac{4}{3}, \frac{8}{9}, -\frac{16}{27}, \ldots$?
3	Francine can type 48 words per minute. How long, to the nearest minute, will it take her to type a paper with 505 words?
4	What is the probability that a randomly chosen card from a standard deck will be either red or an ace?
5	Evaluate: $\frac{5}{8} + 4\frac{1}{3}$ and express your answer as a common fraction.
6	What is the distance between the points (-2, 7) and (6, -8) on a coordinate plane?
7	What is the product of all integer solutions to the inequality $\lvert x - 2 \rvert < 4$?
8	A farm has sheep and turkeys. If there are 44 heads and 124 legs among the animals, how many sheep are there?
9	A bowl contains a large number of white beans. Marcy selects 75 beans and marks each of them with her favorite neon green gel pen. She then mixes the marked beans back into the bowl with the other beans. Next, she randomly selects 80 beans from the bowl and observes that three of them have the neon green mark. If this ratio exactly reflects the ratio in the bowl, how many beans were originally in the bowl?
10	Find the sum of the mean of the numbers in the set {7, 2, 5, 11, 3} and the median of the numbers in the set {216, 1, 27, 125, 64, 8}, and express your answer as a decimal.
11	Solve for m: $8m - 2(m + 6) = -3(m - 11) + 4m$
12	When $5x^2 - 20x$ is divided by the quantity D, the result is equivalent to $3 - 2x + 1 + x$. In simplest form, what is D?
13	What is the volume, in cubic meters, of a cone with radius 3 meters and slant height 8 meters?
14	The area of a certain parallelogram is $x^2 + 8x + 12$ and the length of its base is $x + 2$. What is its height in terms of x?
15	What is the surface area, in square cm, of a cylinder with radius 8 cm and height 5 cm?
16	If it takes three girls eight days to build six model airplanes, how many days would it take two girls to build five model airplanes at this rate?

17	A rectangular tile floor consists of five rows of seven square tiles. If a diagonal line is drawn from one corner to the opposite corner, how many tiles will contain a portion of the line?
18	Evaluate: $\left(5^3 \cdot 2^6\right)^{\frac{1}{3}}$.
19	Wayne Dwade throws a ball whose path is described by the graph of the function $y = -(.25x - 3)^2 + 15$, where x represents the number of feet the ball's center of gravity has traveled horizontally and y represents the number of feet it has traveled vertically. How many feet high is the ball's center of gravity when it has traveled twelve feet horizontally?
20	Find the sum of the two solutions to the following equation: $8x^2 - 2x - 1 = 0$
21	What is the surface area in square yards of a regular tetrahedron with edge length 12 yards?
22	Points N, M, and L are on circle K such that the measure of angle NML is 80°. Point J is outside circle K such that $\overline{NJ}$ and $\overline{LJ}$ are tangent to circle K. What is the measure, in degrees, of $\angle NJL$?
23	A group of friends rents a cabin for a week, splitting the cost evenly. If there had been one more person in the group, each person would have paid twelve dollars less. If there had been one fewer person in the group, each person would have paid fifteen dollars more. What was the total cost of the cabin rental, in dollars?
24	Evaluate: $34125_6 + 3204_6$ and give your answer as a base 6 number.
25	By what amount is any given term in the following geometric sequence multiplied to give the term that follows it? $\frac{1}{2}, -\frac{\sqrt{2}}{4}, \frac{1}{4}, \ldots$
26	What is the greatest common factor of 6! and 12^3?
27	How many different arrangements are there of the letters in the word 'fescennine' (meaning extremely rude, outrageously coarse)?
28	When one more than my favorite number is multiplied by five, the product is the same as when three less than my favorite number is multiplied by three-fifths. What is my favorite number?
29	The equation of a line in standard form is $Ax + By = C$, where A is a positive integer and B and C are integers and A, B and C have no common factor greater than one. What is the equation, in standard form, for a line containing the point (2, -5) and perpendicular to the line with the equation $y = \frac{2}{3}x - 6$?

Challenge Questions

30	Mary holds the ace, 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen, and king of spades in that order in her hand. All of the cards are face up in one stack with the ace showing and the king at the very bottom. If Mary takes the ace off of the pile and discards it, and then moves the 2 to the bottom, then discards the 3, and then moves the 4 to the bottom, and so on, until she has only one card left, what will that remaining card be?

31	The formula $\left(2^{p-1}\right)\left(2^{p}-1\right)$ results in a perfect number for some prime values of p, including $p=7$. What is the resulting perfect number when $p=7$?
32	Mark needs someone to do the dishes for him each night for the next 15 nights, because he has to polish his rock collection for the next rock show. He offers his sister a penny the first night, two pennies the second night, four pennies the third night, and so on, doubling the number of pennies each night until 15 nights pass. His sister isn't about to work for such chump change and so Mark has to miss the rock show. How much money, in dollars, did Mark's sister miss out on?
33	Four overlapping circles have radii of 2 cm, 5 cm, 8 cm and 11 cm as shown. As a reduced common fraction, what is the ratio of the area of the smaller gray region to the area of the larger gray region? 
34	What is the length, in inches, of the longest diagonal of a right rectangular prism with dimensions 3 inches by 5 inches by 8 inches?
35	175 people stand equally spaced in a circle. They count off consecutively, starting with 1 (1, 2, 3, and so on). The person who says number 63 is standing opposite a gap. If the 2 people next to this gap then leave the circle, what is the sum of the numbers that were called out by the 173 people remaining in the circle?
36	Evaluate: $(3^{83} - 3^{80}) \div (9^{41} - 9^{39})$
37	When empty and with the drain plugged, a certain pool takes 20 minutes to fill when only tap A is turned on and 12 minutes to fill when both tap A and tap B are turned on. When tap A is turned on but the drain is left unplugged, the same pool takes 36 minutes to fill. How many minutes would it take to fill the empty pool if only tap B is on but someone forgot to plug the drain?
38	For two positive integers x and y, their product minus their sum is equal to 67. For how many ordered pairs (x, y) is this true?
39	The coordinates of the vertices of a triangle are (0,2), (9,2), and (9, 14). The triangle is rotated 90°, 180° and 270° clockwise about the origin. What is the area of the circle that circumscribes these four triangles?
40	In rolling two standard dice, the probability of rolling a sum of x or y is $\frac{1}{4}$. The probability of rolling a sum of x, y, or z is $\frac{5}{12}$. What is the largest possible sum of x + y + z?

"Math is Cool" Masters – 2006-07

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8th Grade – January 13, 2007

Individual Multiple Choice Contest

Five housing moguls exist in Abbottland, Albert's Homes, Brahe's Homes, Copernicus's Homes, Descarte's Homes, and Euclid's Homes. Due to building codes in Abbottland, each home's floor plan (outline or "footprint" at ground level) must be a polygon with an area no greater than 1600 square feet. To meet code, each company has settled upon a different floor plan, as follows (some data intentionally left blank):

	Albert's Huge House	**Brahe's Tremendous Triangle**	**Copernicus' Outrageous Octagon**	**Descarte's Specialty Square**	**Euclid's Righteous Triangle**
Shape:	Square	Equilateral Triangle	Regular Octagon	Square	Right Triangle
Outline Area (ft^2):			$450\sqrt{2}$ + 450		
Side Length (ft):	40	60	15	15	72, 30 (legs)
Cost ($):	1600	2000		500	1100

NOTE: For calculation purposes, round $\sqrt{2}$ to 1.4 and $\sqrt{3}$ to 1.7

1	Copernicus's Homes produces Outrageous Octagons at a price of \$10 per 9 ft^2 of Octagon. What is the price of a single Outrageous Octagon? A) \$1200 B) \$1350 C) \$1400 D) \$1450 E) \$1500
2	Which company's home costs the least per square foot of floor space? A) Albert's Homes B) Brahe's Homes C) Copernicus's Homes D) Descarte's Homes E) Euclid's Homes
3	Which company's homes cost the least per foot of perimeter? A) Albert's Homes B) Brahe's Homes C) Copernicus's Homes D) Descarte's Homes E) Euclid's Homes
4	Descarte's Specialty Squares were specifically designed to be surrounded by four Outrageous Octagons (each side of a Specialty Square shares a side with an Octagon). If a developer has 9 Specialty Squares to use to make one big house as described above, what is the minimum number of Outrageous Octagons he will need? A) 9 B) 16 C) 36 D) 20 E) Answer not given

5	Euclid's Righteous Triangles are also marketed as duplexes. Two Righteous Triangles are laid hypotenuse to hypotenuse to form a rectangular duplex. What is the maximum number of duplexes that could fit in a rectangular plot of land one mile wide by 144 feet long, assuming no space is left between houses? A) 326 B) 352 C) 400 D) 452 E) 564
6	Rick Feynman owns a Huge House standing on a large lot. He has decided to put a fence around his Huge House, and his only criterion for his fence is that no part of his fence can be less than fifteen feet from his Huge House. What is the minimum amount of fencing he must buy to surround his Huge House? A) 160 ft B) $160+30\pi$ ft C) $160+15\pi$ ft D) $160+225\pi$ ft E) Answer not given
7	A housing developer has a tract of land in the shape of an equilateral triangle 420 feet on a side. What is the maximum value of Tremendous Triangles that can fit on this tract of land, assuming no space is left between houses? A) \$72000 B) \$90000 C) \$98000 D) \$104000 E) \$120000
8	Copernicus' Homes won a bid to build the Abbottland Memorial Convention Center. Rather than starting from scratch, Copernicus' Homes has decided to simply scale up the Outrageous Octagon to fit the needs of the city. If the Convention center is to be built on a square plot of land, how many minimum square feet must the plot be if the convention center is to be $7200\sqrt{2}+7200$ ft^2? A) $7200\sqrt{2}+10800$ B) $10800\sqrt{2}+7200$ C) $7200\sqrt{2}+7200$ D) $10800\sqrt{2}+10800$ E) 18000
9	An upstart developer, Fermat's Round Residences, has just received special dispensation from the Abbottland city council to begin building circular homes. Fermat has decided to build homes with exactly the same price and area as Albert's Huge House. How much greater is their cost per foot of circumference than Albert's Huge House's cost per foot of perimeter? A) $\frac{20}{\pi}-10$ B) $20\pi-10$ C) $\frac{20\sqrt{\pi}}{\pi}-10$ D) 0 E) π

"Math is Cool" Masters – 2006-07

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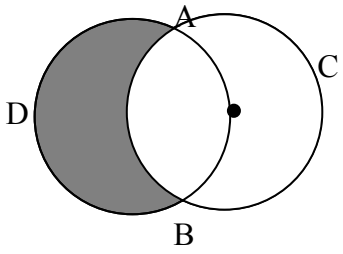
8th Grade – January 13, 2007

Team Contest

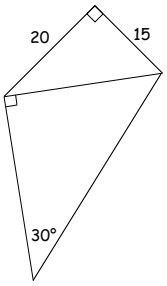
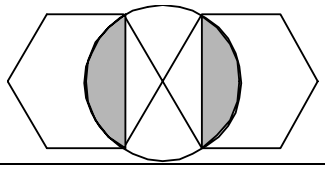
1	A cow is tied to an external corner of a triangular barn with sides measuring 10 m, 20 m, and $10\sqrt{3}$ m. If the cow's tether is 12 m long and is tied to the corner between the 10 and 20 m sides, what is the area, in square meters, of the region the cow can graze?
2	Evaluate: $(1+2\cdot 3)^4 - (5\cdot 9 - 6\cdot 8)^7$
3	If all 120 positive integers created by rearranging the digits 1 through 5 are put in ascending numerical order, what is the 80^{th} integer? [Hint: 12345 is the first integer on the list.]
4	The operation € is defined for all non-zero numbers as: a € b = a^2/b Determine the value of [(1 € 2) € 3] – [1 € (2 € 3)]
5	When the digits of a positive two-digit number are reversed the result is a positive two-digit number 45 less than the original number. What is the smallest possible value of the original number?
6	A cockroach begins at A and walks clockwise along the circumference of the white circle past C. When it gets to B, it goes along the circumference of the gray circle past D and back to A. If the radius of each circle is 4 feet, how many feet are in the total distance traveled by the cockroach? [The circumference of the gray circle passes through the center of the white circle.] 
7	What is the volume, in cubic centimeters, of a right rectangular prism the faces of which have areas of 12, 16, and 20 cm^2?
8	In a recursively defined sequence you can find the value of the second term (a_2) by applying a formula to the first term (a_1). What is the sixth term of the recursively defined sequence with $a_1 = 1024$ and $a_n = \frac{a_{n-1}}{2} + 768$?
9	What is the probability that when five cards are drawn from a standard 52-card deck, four of them have the same rank?
10	What is the least common multiple of 168 and 126?

"Math is Cool" Masters – 2006-07

Sponsored by: IEEE – Central Washington Section

8th Grade – January 13, 2007

Pressure Round Contest

1	Richard and Stephanie each make a list of numbers. Both lists start with 7, include only positive integers, and have no number greater than 100. For his list, Richard takes each number and adds 6 to get the next number. For her list, Stephanie doubles each number and subtracts 5 to get the next number. Find the sum of all numbers (including 7) that are on both Richard's list and Stephanie's list.
2	Find the perimeter of the quadrilateral shown. 
3	The two hexagons are congruent and regular with side length 12 units. Their vertices meet at the center of the circle, which passes through 4 other vertices. Find the total shaded area, in square units. 
4	Two identical cubical dice are each weighted so that all odd numbers are equally likely and all even numbers are equally likely, but the dice are 3 times as likely to land with an odd number showing rather than an even number. When this pair of dice is rolled, what is the probability of rolling a sum of 6?
5	The calculator I bought on eBay has a weird flaw. When I add two numbers ($x + y$), it reverses the digits of **at least one** of x, y, and the sum. (That is, it may reverse the digits of any one of these numbers, any two of these numbers, or of all three of them. If the digits of one or both addends are reversed, it adds the numbers after reversing the digits.) When I add the same pair of 4-digit positive integers repeatedly, my calculator displays the following different sums: 68911, 2176, 7891, 56131, 11986, 1987, and 13165. What is the correct sum of the two numbers I entered?

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8th Grade – January 13, 2007

Mental Math Contest

PERSON 1		
1.1	What is the circumference, in feet, of a circle with radius pi feet?	$2\pi^2$ [or 2 pi squared][feet]
1.2	How many distinct factors of 28 are prime?	2 [factors]
1.3	Solve for x in the equation: x squared minus ten x equals negative twenty-five.	5
1.4	If the smallest angle in a parallelogram is fifteen degrees, then the largest angle is n times fifteen degrees. What is n?	11
PERSON 2		
2.1	What is the sum, in centimeters, of the lengths of the edges of a regular tetrahedron if one edge has length 4 centimeters?	24 [cm]
2.2	How many zeros does the product of the first thirty odd positive integers end in?	0
2.3	What is the remainder when you divide 14,641 by 11?	0
2.4	The 1-digit prime numbers are used once each to form two whole numbers which are then added together. What is the largest possible sum that could result?	755
PERSON 3		
3.1	In cubic millimeters, what is the volume of a sphere with surface area 36 pi square millimeters?	36π [mm^3]
3.2	What is the next number in the sequence that starts 1, 16, 81, 256?	625
3.3	In how many different ways can the letters in the word banana, B-A-N-A-N-A, be arranged?	60 [ways]
3.4	What is the greatest common factor of 72 and 84?	12
PERSON 4		
4.1	As a decimal, what is the average number of days per month in a Leap Year?	30.5 [days]
4.2	The product of two integers is 48 and the quotient of the two integers is 5 and one-third. What is the sum of the two integers?	19
4.3	Evaluate 27 to the power of four-thirds.	81
4.4	What is the sum of the numbers in the following sequence: one, two, four, eight, dot, dot, dot, five hundred twelve?	1023

"Math is Cool" Masters – 2006-07

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8th Grade – January 13, 2007

COLLEGE KNOWLEDGE BOWL ROUND #1

#	Problem	Answer
1	What is the sum of the number of face diagonals and the number of space diagonals of a cube?	16
2	In any given soccer game, Katie has a 1/3 chance to score a goal, a 1/2 chance to get an assist, and a 1/4 chance of getting a yellow card. Assuming these three events are independent, what is the probability that she doesn't get a yellow card but does get either a goal or an assist or both in her next game?	$\frac{1}{2}$
3	How many ways can 4 children be arranged in 6 chairs?	360 [ways]
4	In a field, there are asters with 12 petals, tulips with 6 petals, and strange daffodils with 2 petals. There are 3 times as many tulips as asters. If a hiker sees 23 stems and 134 petals in the field, how many strange daffodils does she see?	7 [daffodils]
5	Pac-Man is eating dots. Each second he eats one-third of the remaining dots. If there were 486 dots three seconds ago, how many dots will there be in two seconds?	64 [dots]
6	A ball with radius ten over pi meters is rolled down a hill. If the altitude of the hill is 100 meters and the slope is four-thirds, how many revolutions has the ball made when it reaches the bottom? Give answer as a decimal.	6.25 [revolutions]
7	When three-fourths is divided by five-sixths, and that quotient is multiplied by the sum of five-halves and one-third, what is the product?	$\frac{51}{20}$
	Extra Problem – Only if Needed	
8	What is the lateral surface area of a right circular cylinder with radius 3 and height 8?	48π [un^2]

"Math is Cool" Masters – 2006-07

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8th Grade – January 13, 2007

COLLEGE KNOWLEDGE BOWL ROUND #2

#	Problem	Answer
1	Bill can mow a lawn in 90 minutes. Kara can mow the same lawn in 60 minutes. If Bill, Kara, and Wayne working together can mow the same lawn in 30 minutes, how many minutes would it take Wayne to mow this lawn by himself?	180 [min]
2	What is the smallest prime number greater than 200?	211
3	A pencil can write 100 digits before it has to be sharpened. How many sharpenings are needed to write the counting numbers from 1 through 1000 inclusive if you start with a sharpened pencil?	28 [sharpenings]
4	If Martha flips six coins, what is the probability that more than half of them will be heads?	$\frac{11}{32}$
5	If 28 is 31 more than x, and 4 times y is 7 less than the absolute value of x, then what is y?	[y =] -1
6	What is the slope of the line with the equation 5 x minus 2 y equals twenty-two?	5/2
7	Johnny Appleseed has 28 indistinguishable apples that he wants to distribute among 4 people so that everyone gets at least one apple. How many ways can he do this?	2925 [ways]
	Extra Problem – Only if Needed	
8	How many 2-digit Fibonacci numbers are palindromes?	1

"Math is Cool" Masters – 2006-07

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8th Grade – January 13, 2007

COLLEGE KNOWLEDGE BOWL ROUND #3

#	Problem	Answer
1	Cam and Joel are playing a game. They read off counting numbers from 1 through 100. Cam scores one point for each multiple of 3. Joel scores one point for each multiple of 4, and he steals Cam's point whenever there is a multiple of both 3 and 4. How many points does the winner win by?	8 [points]
2	What is the square of 195?	38,025
3	In degrees, take the complement of the measure of an exterior angle of a regular octagon, multiply by 12 and divide by the supplement of the measure of an interior angle of a regular decagon. What is the final result?	15
4	The measures of the angles of a triangle are in ratio 4:5:6. What is the measure of the largest angle in degrees?	72 [°]
5	How many positive integer factors does 6 factorial have?	30 [factors]
6	My number is a 5-digit positive integer of the form AABCC, where A, B, and C stand for different digits. My number is a multiple of 495. What is my number?	44055
7	When three cubical dice are rolled, what is the probability of rolling a sum of 5?	$\frac{1}{36}$
	Extra Problem – Only if Needed	
8	How many more edges does an octahedron have than a tetrahedron?	6 [edges]

"Math is Cool" Masters – 2006-07

Geometry – January 13, 2007

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

KEY

First Score

STUDENT NAME_____

Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	π [in^2]		
2	32/81		
3	11 [min]		
4	7/13		
5	119/24		
6	17 [units]		
7	0		
8	18 [sheep]		
9	2000 [beans]		
10	51.1		
11	[m =] 9		
12	[D=] $-5x$		
13	$3\pi\sqrt{55}$ [m^3]		
14	x + 6		
15	208π [cm^2]		
16	10 [days]		
17	11 [tiles]		
18	20		
19	15 [ft]		
20	1/4		

	Answer	1 or 0	1 or 0
21	$144\sqrt{3}$ [yds^2]		
22	$20^{[o]}$		
23	[$] 1080 [or 1080.00]		
24	$41333_{[6]}$		
25	$-\frac{\sqrt{2}}{2}$		
26	144		
27	100,800		
28	-17/11		
29	3x + 2y = -4		
30	10 [of spades]		
31	8,128		
32	[$]327.67		
33	7/19		
34	$7\sqrt{2}$ [inches]		
35	15,099		
36	117/40		
37	90 [min]		
38	6		
39	277π [units^2]		
40	24		

"Math is Cool" Masters – 2006-07

8th Grade – January 13, 2007

Final Score:
KEY

School Name_____Team #_____

Proctor Name_____Room #_____

First Score

(out of 18)

STUDENT NAME_____

INDIVIDUAL 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. It is not necessary to write your personal name on the test, but you may put it at the bottom of the test so your coach will be able to give you back the correct test. This test is taken individually, but it is part of your team score, including zeros for missing team members. Your team score will be calculated by taking the mean of your four team members' scores. When you are prompted to begin, tear off the colored sheet and begin testing. ***Since this is a multiple choice test, ONLY a letter response should be indicated as an answer on the answer sheet.*** *No talking during the test.*

DO NOT WRITE IN SHADED REGIONS

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

Final Score:
KEY

"Math is Cool" Masters – 2006-07

8th Grade – January 13, 2007

School Name_____Team #_____

Proctor Name_____Room #_____

First Score

(out of 20)

STUDENT NAME_____

Team Contest – Score Sheet

TEAM TEST - 15 minutes

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 ***2 or 0****. Record all answers on the colored answer sheet.*

DO NOT WRITE IN SHADED REGIONS

	Answer	2 or 0	2 or 0
1	121π [m^2]		
2	4588		
3	42153		
4	-2/3		
5	61		
6	$\frac{32\pi}{3}$ [ft]		
7	$16\sqrt{15}$ [cm^3]		
8	1520		
9	1/4165		
10	504		

"Math is Cool" Masters – 2006-07

8th Grade – January 13, 2007

School Name_____Team #_____

Proctor Name_____Room #_____

STUDENT NAME_____

PRESSURE ROUND - 10 minutes

When it is time to begin, you will be handed a packet of questions. There is a copy of the questions for each team member. Two minutes after the start of the test you are expected to submit an answer for one of the questions (it can simply be a guess). The maximum value of this answer is 1 point. In another two minutes you are expected to submit another answer to one of the four remaining questions; its maximum value is two points. This process will continue until all the questions are answered and each consecutive question's worth will go up by one point. You must submit your answers on the colored sheets given to you. If you do not have an answer at the end of a two minute period, you must still submit an answer sheet with an identified question number on it. Failure to do so will result in loss of points. This event is timed, and you will be given a verbal 5 second warning and told to hold your answer sheet up in the air. You may keep working as the sheets are collected.

Pressure Round Answers

	Answer
1	57
2	$85 + 25\sqrt{3}$ [units]
3	$96\pi - 72\sqrt{3}$ [units^2]
4	$\frac{29}{144}$
5	6712