"Math is Cool" Masters – 2014-15

May 16, 2015

Total Correct

KEY

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

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

6th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	[$] 1149.72		
2	6		
3	25 [figures]	1	1
4	5/12		
5	120 [min]		
6	629730		
7	38 [min]		
8	orange		
9	126		
10	4 [slices]		
11	96π [in]		
12	3 [people]		
13	71 [in]		
14	2:08 PM		
15	[$] 14.40		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	131 [min]		
17	3		
18	$4\frac{1}{4}$ [pints]		
19	300 [snowballs]		
20	[$] 18.50		
21	9 [pencils]		
22	3 [prime factors]		
23	690 [min]		
24	12 [choc bars]		
25	[$] 88		
26	5 [°F]		
27	Website B		
28	5 [integers]		
29	88 [degrees]		
30	6 [months]		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	12 [houses]		
32	40 [feet]		
33	21 [slug bugs]		
34	55 [mph]		
35	5 [minutes]		
36	3:53.18		
37	15 [members]		
38	4 [minutes]		
39	3		
40	963531		
31-40 TOTAL:			

6th Grade

Total Correct

"Math is Cool" Masters – 2014-15

May 16, 2015

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

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

6th Grade 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

"Math is Cool" Masters – 2014-15

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May 16, 2015

6th Grade Mental Math Contest

Follow along as your proctor reads these instructions to you. Your Mental Math score sheet is on the back.

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.*

Mental Math – 30 sec per question

8 problems read orally to everyone - Approximately 8% of Individual Score - 25% of team score

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor 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 change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, 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 after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

"Math is Cool" Masters – 2014-15

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6th Grade – May 16, 2015

Mental Math Contest

Mental Math – 30 sec per question

8 problems read orally to everyone - Approximately 8% of Individual Score - 25% of team score

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor 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 change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, 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 after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

#	Problem
1	Anna can walk 4 miles in one hour. How many hours will it take her to walk 26 miles? Answer as a mixed number.
2	What is three-fourths of five-eighths of sixteen?
3	My garden fence creates a six feet by four feet rectangle. If I reuse all of this fencing to make a new garden in the shape of an equilateral triangle, what is the length of each side of the new garden, in feet?
4	If one percent of the 2000 students at Westside High School volunteered at the Math is Cool tournament, how many students volunteered?
5	What is the smallest integer greater than the square root of 150?
6	How many positive numbers less than fifty are divisible by either 8 or 3, but not both?
7	What is the second largest three-digit number with three distinct digits that are all prime numbers?
8	It is currently 9:30 PM. At 10 o'clock PM, on an analog clock, what will be the difference between the number of degrees the minute hand has moved and the number of degrees the hour hand has moved?

"Math is Cool" Masters – 2014-15

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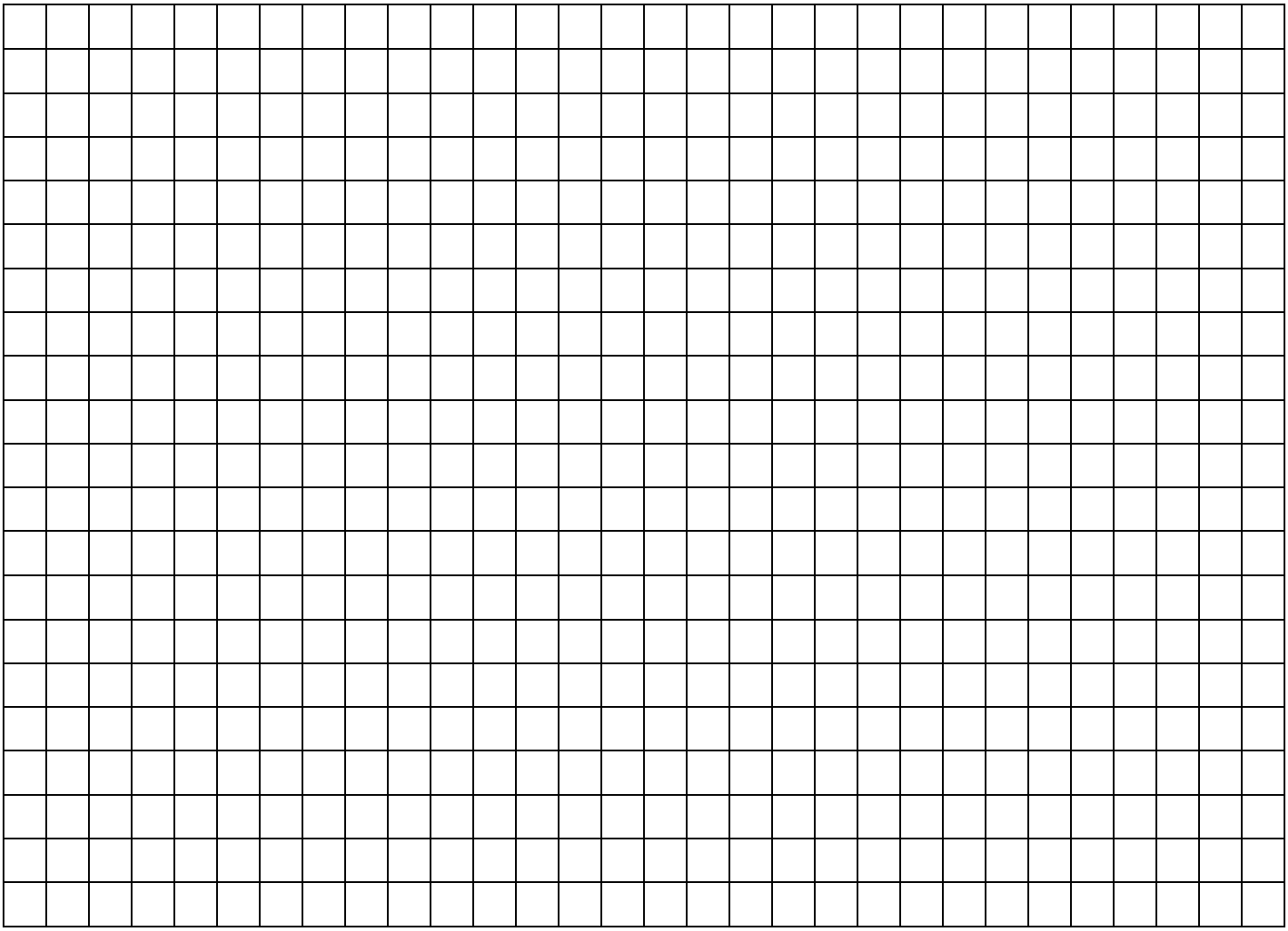
May 16, 2015

Individual Contest – 6th Grade

Tear this cover sheet and scratch paper off and fill out the top of the colored answer sheet prior to the start of the test. The graph below is for your use, if needed.

INDIVIDUAL TEST - 35 minutes

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! 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. The raw score will be 2 points for correct answers to problems 1-30 and 3 points for 31-40. 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 – 2014-15

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6th Grade – May 16, 2015

Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	The floor of a coffee shop in Cashmere, WA is covered with 114,972 pennies. How much is this in dollars?
2	Solve for J in the following equation: $3J + 5 = 23$
3	A geometry teacher drew some quadrilaterals on the chalkboard. There were 5 trapezoids, 12 rectangles, 5 squares, and 8 rhombuses. What is the least number of figures the teacher could have drawn?
4	Louisa has 5 fiction books and 7 nonfiction books on a table by her front door. As she rushes out the door, she takes a book at random. As a fraction, what is the probability that the book she grabs is fiction?
5	Fred can bike 6 miles in 45 minutes. How many minutes does it take him to bike 16 miles?
6	Which of the following numbers is divisible by 9 with no remainder: 436918, 824617, 629730, 214979?
7	Suzy runs uphill at a speed of 10 minutes per mile and downhill at a speed of 9 minutes per mile. If Suzy runs uphill for 2 miles, and then turns around and runs back downhill for 2 miles, how many minutes was Suzy's entire run?
8	Bosco is counting boxcars on a passing train. He notices the colors of the cars create a repeating pattern: brown, orange, yellow, brown, orange, yellow, …. What color is the 125^{th} car that he counts?
9	What is 35 times 18 divided by 5?
10	On "PI" day, six friends ordered three pies. Each pie is cut into eight slices. If everyone gets an equal amount, how many slices of pie does each person get?
11	Josie fastened a 4 foot rope to a stake in the ground and, with the rope fully extended, traced a circle around the stake. What is the circumference of the circle, in inches?
12	A hot water heater holds 80 gallons of water. If the dishwasher uses 6 gallons, the washing machine uses 25 gallons and a person showering uses 14 gallons, how many people can take a complete shower after the dishwasher and washing machine have been run?
13	On Sunday, Boston had 4 feet of snow on the ground. On Monday it snowed 12 inches; on Tuesday, it snowed 7 inches; on Wednesday, it warmed up and 2 inches of snow melted, and on Thursday, it snowed 6 more inches. How many inches of snow were on the ground on Friday?
14	Jack and Jill are meeting at the movie theatre for a 2:00 PM movie. Jack arrives 15 minutes early. Jill arrives 23 minutes after Jack. At what time does Jill arrive?
15	Gasoline costs $2.10 per gallon. Melisa has a discount card that gives her a 50 cent discount per gallon. How much, in dollars, will it cost Melisa to fill her tank with 9 gallons? [Express answer as a decimal.]

16	Piper runs a half-marathon, 13.1 miles, at a 10 minute per mile pace. How long does it take her to complete the half-marathon, in minutes?
17	What is the remainder when 54321 is divided by 6?
18	The Fibonacci math team is celebrating its win at Eho's ice cream parlor. Eho uses $\frac{1}{2}$ pint of ice cream in each milkshake and $\frac{1}{4}$ pint of ice cream in each ice cream cone. The team orders 7 cones and 5 milkshakes. As a mixed number, how many pints of ice cream did Eho have to use to serve the team?
19	Bif can make snowballs at a rate of 30 per minute. Eho can make snowballs at a rate of 40 per minute. Eho starts making snowballs 3 minutes after Bif starts. Both Bif and Eho stop making snowballs 6 minutes after Bif started. Together, how many snowballs did Bif and Eho make?
20	A grandmother gave each of her 7 granddaughters 7 quarters and each of her 5 grandsons 5 quarters. How many total dollars did the grandmother give her grandchildren? [Express answer as a decimal.]
21	Debbie has 42 pencils, Linda has 52 pencils and Dawn has 36 pencils. What is the least number of pencils Linda can give Dawn so that Dawn has more pencils than either Debbie or Linda?
22	How many prime factors does 1182 have?
23	If sunrise is at 7:26 AM and sunset is at 6:56 PM, how many minutes of daylight are there?
24	Rudy is trading candy with a friend. 2 chocolate bars are equal to 5 caramels. 6 caramels are equal to 8 lollipops. If Rudy has 40 lollipops to trade, how many chocolate bars can he get?
25	A cheese pizza cost $10 and a pepperoni pizza costs $12.One pizza feeds 3 people. If the WHS Math is Cool team has 24 members and half the team eats cheese pizza and the other half eats pepperoni pizza, how much would it cost to feed the entire team, in dollars?
26	The high temperatures in Houghton, Michigan for one week of February were (-2°F, -5°F, 17°F, 10°F, 0°F, 6°F, and 9°F). What was the average high temperature in degrees Fahrenheit?
27	Annie is doing some online shopping. She wants to purchase two videogames that cost $80 each. Website A offers free shipping and a 25% discount on each item. Website B offers a 30% discount on each item and $7.49 shipping. Website C offers a buy one item at full price and get the second item at half price, with $5.99 shipping. From which website should she purchase the videogames, in order to get the best deal?
28	For how many positive integers, n, is $100 \leq n^2 \leq 200$?
29	On February 18, the high temperature in the U.S. was 77 degrees in Coachella, CA and the low temperature was -11 degrees in Grand Marsais, MN. What is the positive degree difference between these two temperatures?
30	The membership fees for the gym consist of a monthly charge of $14 and a one-time new member fee of $16. Sam made a payment of $100 to pay his gym fees for a certain number of months, including the new member fee. How many months of membership did Sam include in his payment?

Challenge Questions: 3 points each	
31	Ezra has forgotten the address of his friend's house, but knows it contains the four numbers 1, 2, 3, 1. How many different houses could it be?
32	A circular running track is being built in a fenced-in athletic field 100 feet wide and 150 feet long. If a border of 10 feet is needed between the outside edge of the track and the fence, what is the radius, in feet, of the largest track that can be built?
33	Katie and her mom are counting slug bugs. Katie has ten times as many slug bugs as her mom. After Katie and her mom each see one more slug bug, Katie has seven times as many as her mom. How many slug bugs does Katie have now?
34	The odometer of a car reads 15951, a palindrome. If the next time the odometer shows another palindrome is after 2 more hours of driving, at what speed was the car traveling for those 2 hours, in miles per hour?
35	Carl's Clean Carpet team can clean the carpet in a room that is 10 feet by 10 feet in 20 minutes. How long, in minutes, would it take them to clean a walk-in closet that is 5 feet by 5 feet?
36	A swim medley relay is a relay race combining the times of four swimmers each swimming one of the following strokes: butterfly, breast stroke, backstroke and freestyle. If Adam swam the butterfly in 55.32 seconds, Brad swam the breast stroke in 68.20 seconds, Carl swam the backstroke in 59.65 seconds and Dave swam the freestyle in 50.01 seconds, what was the total time of the medley relay team? [Answer in M:SS.DD format where M is minutes, SS is seconds and DD is hundredths of seconds.]
37	A tour bus charges a group rate of $10 plus an additional $10 for every 3 people. Claire's family pays $60 to take the tour. How many members of Claire's family were on the tour bus?
38	Sal is picking blueberries with her mom. Sal's mom can fill the pail with blueberries in 5 minutes. Sal can fill the pail in 20 minutes. If Sal and her mom are working together to fill the pail, how many minutes will it take to fill the pail?
39	In a snowball prime, a new prime is created by adding a digit that is a prime number to the end of a prime number; for example, 7, 73 (add 3), 739 (add 9). What digit can be added to 29 to create another prime number?
40	When Vlad was a boy in Russia, he used to ride the bus and play a game with the bus tickets that were numbered with 6 digit numbers, from 000001 to 999999. A bus ticket was considered to have a "lucky" number if the sum of the first 3 digits was equal to the sum of the last 3 digits. Find the difference between the largest possible lucky number with six different digits (that is, no number is used twice in the six digit number) and the smallest possible lucky number with six different digits.

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6th Grade – May 16, 2015

Team Multiple Choice Contest

USE THE FOLLOWING TABLES TO ANSWER QUESTIONS 1-3.

Emily and her friends are participating in a fitness and skill competition consisting of 5 events. Participants are awarded medals based on their results across all events. A participant is eligible for a medal based on the level reached of the lowest qualifying event. For example, a participant meeting the standards for Gold in 4 events and Silver in one event would be eligible for a Silver medal. If a participant does not meet the scoring standard in any one event, the participant is not eligible for any medal.

Event scoring standards

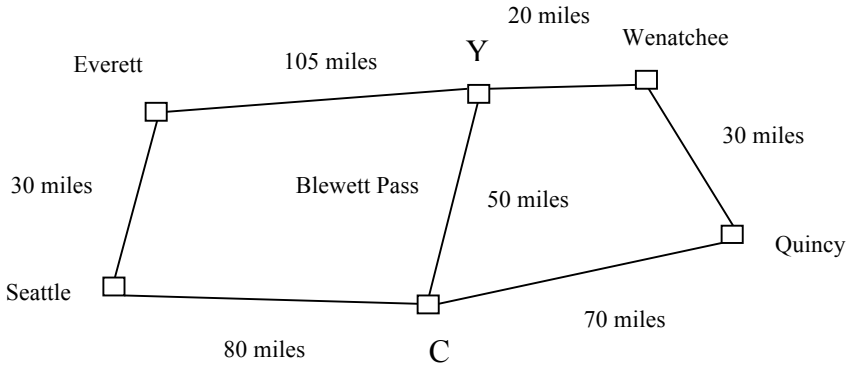
Level	11 x 10m sprint	Flexed arm hang	Target shooting	1000 m run	100 m swim
Gold	35 – 42 sec	65 – 86 sec	5 hits	2:50 – 3:45 min	Under 4 min
Silver	43 – 48 sec	45 – 64 sec	4 hits	3:46 – 4:40 min	Under 4 min
Bronze	49 – 60 sec	05 – 44 sec	3 hits	4:41 – 6:30 min	Under 4 min

Participant Results

Participant	11 x 10 m sprint	Flexed arm hang	Target shooting	1000 m run	100 m swim	Medal earned
Emily	40 sec	80 sec	3	3:32	3:24	?
Percy	41	82	5	?	3:12	Silver
Frederick	37	?	5	3:15	3:10	Gold
Sara	45	44 sec	4	4:41	4:12	?

1	What color medal did Emily receive? A) Gold B) Silver C) Bronze D) No medal received E) Answer not given.
2	What time could Percy not have received in the 1000 m run? A) 3:47 B) 3:42 C) 3:59 D) 4:40 E) Answer not given.
3	If the average time for all four participants in the flexed arm hang was 72 sec, what was Frederick's time in the flexed arm hang? A) 82 sec B) 80 sec C) 72 sec D) 44 sec E) Answer not given.

USE THE MAP FOR ANSWERING QUESTIONS 4-7.



4	What is the shortest distance, in miles, from Wenatchee to Seattle? A) 150 miles B) 155 miles C) 160 miles D) 180 miles E) Answer not given.
5	Jane is driving from Wenatchee to Seattle over Blewett Pass (Blewett Pass is on the road from Y to C). The peak of Blewett Pass is located 40 miles from Wenatchee. If Jane takes a break at the peak, what fraction of the distance does she still have to travel? A) 4/15 B) 2/15 C) 3/5 D) 11/15 E) Answer not given.
6	Instead of driving, Samantha decides to travel by Amtrak, which arrives in Seattle at 10:25 AM. If Jane drives her car to Seattle at an average speed of 60 mph, what is the latest time does she can leave Wenatchee to arrive in Seattle at the same time as Samantha? A) 6:25 AM B) 7:25 AM C) 7:55 AM D) 7:52 AM E) Answer not given.
7	Jane's car gets 30 miles per gallon and has a 10 gallon gas tank. Jane begins her journey with her gas tank half full. After traveling 105 miles, Jane stops to fill her gas tank full. If gas costs $3.00 per gallon, and Jane pays with a $50 bill, how much change will she receive? A) $47.00 B) $20.00 C) $25.50 D) $24.50 E) Answer not given.

ANSWER QUESTIONS 8-10.

8	When dealt two cards at random from a well shuffled standard deck of 52 cards, what is the probability of being dealt two of the same number? A) 3/52 B) 1/26 C) 3/51 D) 1/1326 E) Answer not given.
9	Enya was born 2015 days ago. If today is Friday, on what day of the week was Enya born? A)Sunday B) Monday C) Thursday D) Friday E) Answer not given.
10	A set of twin primes is a pair of prime numbers that differ by two, such as 3 and 5. How many sets of twin primes occur below one hundred? A) 6 B) 8 C) 10 D) 12 E) Answer not given.

"Math is Cool" Masters – 2014-15

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6th Grade – May 16, 2015

Team Contest

1	Sophia lives in a dorm where all the residents are bearcats. There are 8 rooms on each floor and there are 5 floors in the building starting with the first floor. There are 3 bearcats in a room on an odd floor and only 2 bearcats in a room on an even floor. How many bearcats live in the building?
2	30% of the tiles are loose in Rosa's kitchen floor. If the floor is a rectangle 25 tiles in length and 16 tiles in width, how many tiles are loose?
3	Chef Emil made a pan of lasagna for a banquet. He makes 10 cuts along the length of the rectangular pan and 6 cuts along the width. How many pieces does he have?
4	Esme has forgotten her 4 digit numerical passcode to her iPad. Fortunately she does remember a few characteristics of her passcode: a) Her passcode is odd b) Her passcode has four unique digits c) Odd and even digits alternate d) The first two digits form a number that is the square of the last digit e) The first digit is the third digit cubed What is her passcode?
5	Franz has 500 Swiss francs, Juergen has 500 euros, and Alfred has 500 dollars. If 1 dollar equals 0.88 euros, and 1 euro equals 1.08 Swiss francs, who has the largest amount of money?
6	Sam thought of a number. He squared it and then doubled it. Then he added one to his original number and squared it and found that this number was only one more than his first calculation. What was Sam's original number?
7	Bonnie is dealt six cards from a standard deck. Two of the cards are hearts and four of the cards are clubs. What is the probability that the next card she is dealt will be a club?
8	In football, a touchdown is worth 6 points and a field goal is worth 3 points. In addition, **after** scoring a touchdown, a team has the option of kicking an extra point for 1 point or attempting a 2 point conversion. If the Seahawks scored 28 points in one game, how many different ways could they have done this? Do not consider order of touchdowns and field goals.
9	When my father was 31 years old, I was 8 years old. Now he is twice as old as I am. How old am I?
10	Muffins are sold in boxes of 4, 6, or 13. You can buy 8 muffins by choosing 2 boxes of 4 muffins, but you can't buy 9 muffins with any combination of boxes. What is the **largest** number of muffins that cannot be purchased with these boxes?

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6th Grade – May 16, 2015

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	On the first day that Heidi went bird watching she saw 4 birds and 3 snakes. On the 2nd day she 11 birds, 3 dogs and 1 snake. How many total animal feet did she see in the 2 days of bird watching?	42 [feet]
Person 2	What is the total number of sides of TNYWG unattached pentagons?	210 [sides]
Person 3	What is the product of TNYWG and the probability of rolling a sum less than 5 on two six-sided die?	35
Person 4	What is the sum of TNYWG and the sum of all three-digit palindromes that are also perfect squares?	1316
	Relay #2	**Answer**
Person 1	What is the volume, in cubic feet, of a cube with side length of 2 feet?	8 [cubic feet]
Person 2	Biff and Eho went on a trip. Eho drove for TNYWG hours at 70 mph and Biff drove for 11 hours at 60 mph. How far, in miles, did they travel?	1220 [miles]
Person 3	Find the sum of TNYWG and the number of non-overlapping squares of with perimeter 4 units that can be fit inside a square with perimeter 64 units?	1476 [squares]
Person 4	Nellie can build three houses in 41 days. At this rate, how many houses could Nellie build in TNYWG days?	108 [houses]

"Math is Cool" Masters – 2014-15

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	What is the positive difference between one thousand two hundred thirty-four and eight hundred seventy-six?	358
2	What is two raised to the sixth power.	64
3	When my secret number is tripled, then cut in half, the final result is four hundred fifty. What is my secret number?	300
4	How many multiples of 7 are between 100 and 200?	14
5	What is the mean of the data set eleven, [PAUSE] thirty, [PAUSE] seven?	16
6	What is the sum of the prime numbers between twenty-five and forty-five?	181
7	What is the thirtieth term of an arithmetic sequence that begins four, twenty-one, thirty-eight, fifty-five, and so on?	497
8	Two marbles are drawn from a bag containing four red and six blue marbles. What is the probability that they are not both blue?	2/15
9	How many diagonals can be drawn in a regular octagon?	20 [diagonals]
10	If Anne is taller than Ben, Carl is shorter than Donaji, Eve is between Carl and Frank in height, Ben is taller than Donaji, and Carl is taller than Frank, who is the shortest in this group.	Frank

"Math is Cool" Masters – 2014-15

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	As a decimal, what is the sum of thirty-four, three-point-four, point-four-three, and four-point-three-four?	42.17
2	What is nine-squared minus seven-squared?	32
3	If two-X plus three equals four-X minus five, what is the value of X?	4
4	Two circles and two lines are drawn in a plane. What is the largest number of regions into which they can divide the plane?	14
5	What is the perimeter, in meters, of an equilateral triangle with sides measuring 39 m?	117 [m]
6	Express the base four number one-zero-two-zero as a base ten number.	72
7	What is the eighth term of a geometric sequence that begins two, six, eighteen, fifty-four, and so on?	4374
8	Two cards are drawn one-at-a-time **with** replacement from a standard fifty-two-card deck. What is the probability that they are the same suit?	1/4
9	What is the mode of the data set one, [PAUSE] three, [PAUSE] eight, [PAUSE] five, [PAUSE] one, [PAUSE] eight, [PAUSE] four, [PAUSE] eight, [PAUSE] six, [PAUSE] two?	8
10	Amy sits by Brad, Cindy sits somewhere to Delia's right, [PAUSE] Ernie sits somewhere to Frannie's left, [PAUSE] Brad sits somewhere to Ernie's right, [PAUSE] Frannie sits immediately to Cindy's left, [PAUSE] and Ernie does not sit by Delia. Who sits on the left and who is on the right of the table?	Ernie (left), Cindy (right)

"Math is Cool" Masters – 2014-15

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	What is the product of three hundred twelve and seventy-nine?	24,648
2	What is the sum of the number of sides on a parallelogram, the number of inches in a foot, and the number of days in December?	47
3	It takes Xavier two hours to make a widget, and it takes Wylie three hours to make a widget, how many **minutes** would it take them to make a widget if they worked together?	72 [min]
4	What is the perimeter, in meters, of an isosceles triangle with sides measuring nine meters and twenty-seven meters?	63 [meters]
5	What is the measure, in degrees, of an angle that is complementary to an angle measuring nineteen degrees?	71 [degrees]
6	What is the smallest perfect square that has a remainder of 10 when divided by 31?	196
7	What is the next term in the sequence one thousand, [PAUSE] nine hundred eighty-nine, [PAUSE] nine hundred sixty-five, [PAUSE] nine hundred twenty-eight, [PAUSE] eight-hundred seventy-eight, [PAUSE] BLANK?	815
8	When four fair coins are flipped, what is the probability that exactly two of them show tails?	3/8
9	What is the median of the data set six, [PAUSE] nine, [PAUSE] three, [PAUSE] two, [PAUSE] two, [PAUSE] seven, [PAUSE] two?	3
10	A cube of green plastic is painted white, then cut into sixty-four smaller cubes. How many of the smaller cubes are white on exactly one side?	24 [cubes]

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #4 – SET 4

#	Problem	Answer
1	What is the quotient when one thousand three hundred sixty-three is divided by twenty-nine?	47
2	Arrange the variables A, B, C and D in ascending numerical order if A is the sum of eighty-four and fourteen, B is the difference of eighty-four and fourteen, C is the product of eight and fourteen, and D is the quotient of eighty-four and fourteen.	DBAC
3	If four chickens can lay nine eggs in six days, how many days would it take six chickens to lay sixty-three eggs?	28 [days]
4	A rectangle has a perimeter of sixty meters and an area of two hundred sixteen square meters. If all sides are integers when measured in meters, how many meters long is the longest side?	18 [m]
5	What is the circumference, in meters, of a circle with an area measuring eighty-one PI (pronounced "pie") square meters?	18 PI [meters]
6	What is the greatest common factor of seventy-two and one-hundred twenty?	24
7	What is the sum of the thirteen smallest positive numbers that are one smaller than a multiple of three?	260
8	When two fair six-sided dice are rolled, what is the probability that one of the numbers shown is a factor of the other?	11/18
9	What is the range of the data set five, [PAUSE] eleven, [PAUSE] nineteen, [PAUSE] eleven, [PAUSE] thirty, [PAUSE] fourteen, [PAUSE] eleven, [PAUSE] fourteen, [PAUSE] six?	25
10	Lucy and Gru notice one another when they are nine hundred meters apart, and immediate begin running towards one another. If Lucy runs at eleven meters per second and Gru runs at seven meters per second, how many seconds will it take them to reach one another?	50 [seconds]

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	What number is three times the difference between ninety-one and sixty-two?	87
2	As a reduced fraction, what is five sixths of nine tenths?	3/4
3	Grace has 6 apples and cuts each of them into 8 equal pieces. She eats 6 pieces and gives 7 pieces away to Rigel. If she could stick the remaining pieces back together again, how many whole apples could she make?	4 [whole apples]
4	What is the largest possible area, in square meters, of a parallelogram with a perimeter measuring thirty-six meters?	81 [m^2]
5	The vertices of a regular polygon are labeled with letters in clockwise and alphabetical order from A to N. A line is drawn through vertex K that divides the polygon into two congruent halves. What is the letter of the other vertex that the line passes through?	D
6	The sum of three consecutive odd numbers is 111. What is the smallest of the three numbers?	35
7	In how many ways can the letters in the word "DADDIED", spelled D-A-D-D-I-E-D, be arranged?	210 [ways]
8	What are the coordinates, in the form X-COMMA-Y, of the X-intercept of the line two-X-minus-five-Y-equals-forty?	20 comma 0.
9	The sum of two numbers is ninety-eight, and their difference is four. What is the smaller of the two numbers?	47
10	If nine horses can be exchanged for fifteen ponies, how many horses could you get for one hundred ponies?	60 [horses]

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6th Grade – May 16, 2015

COLLEGE KNOWLEDGE BOWL ROUND #6 – SET 6

#	Problem	Answer
1	As a mixed number, what is the quotient of four-and-one-sixth and two-and-a-half?	$1\frac{2}{3}$
2	Express one thousand two hundred in scientific notation.	1.2×10^3, or one point two times ten to the third.
3	If, on Jupiter, there are 7 months in a year, then how many years is 53 months?	7 4/7 [years]
4	What is the area, in square meters, of a circle circumscribed about a square with sides measuring four meters?	8 pi [m^2]
5	What is the measure, in degrees, of an interior angle of a regular polygon with ten sides?	144 [degrees]
6	What is the prime factorization, in exponential form, of one thousand nine hundred sixty?	$2^3 \cdot 5^1 \cdot 7^2$ (1 is optional)
7	What is 8 times the square of 6?	288
8	What are the coordinates, in the form X-COMMA-Y of the midpoint of the line segment from four-COMMA-negative-one to eight-COMMA-nineteen?	Six comma nine
9	What is the volume, in cubic meters, of a right rectangular pyramid who base measures four meters by six meters, and whose height is two meters?	16 [m^3]
10	What is the measure of the smaller angle between the minute and hour hands on a twelve-hour analog clock at 9:10 PM?	145 [degrees]

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COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	What is the largest prime factor of one-hundred two?	17
2	What is the tens digit of the product of the first ten counting numbers?	0
3	A cake recipe calls for three eggs, two and a half cups of flour, and two-thirds cups of sugar, but Emma wants to make a cake one-third the size of the full recipe. As a common fraction, how many cups of flour should Emma use?	5/6 [cup(s)]
4	What is ten less than the largest three-digit counting number plus ten more than the largest two-digit counting number?	1098
5	A trapezoid of height 5 units has bases with lengths of 12 and 14 units. What is the area of this trapezoid, in square units?	65 [sq un]
6	The sum of two consecutive odd numbers is 84. What is the larger of the two numbers?	43
7	How many cups are in three-quarters of a gallon?	12 [cups]

Final Score:

KEY

(Out of 8)

"Math is Cool" Masters -- 2014-15

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

6th Grade <u>Mental Math</u> – 30 sec per question

8 problems read orally to everyone - Approximately 8% of Individual Score - 25% of team score

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor 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 change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, 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 after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

	Answer	1 or 0	1 or 0
1	6 $\frac{1}{2}$ [hours]		
2	15/2		
3	20/3 [feet]		
4	20 [students]		
5	13		
6	18 [numbers]		
7	752		
8	165 [degrees]		

"Math is Cool" Masters – 2014-15

6th Grade – May 16, 2015

School Name_____Team #_____

Proctor Name _____Room #_____

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	C		
2	B		
3	A		
4	A		
5	D		
6	C		
7	D		
8	C		
9	E [Saturday]		
10	B		

"Math is Cool" Masters – 2014-15

6th Grade – May 16, 2015

School Name_____Team #_____

Proctor Name_____Room #_____

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	104 [bearcats]		
2	120 [tiles]		
3	77 [pieces]		
4	8129		
5	Juergen		
6	2 (or 0) [or both]		
7	9/46		
8	10 [ways]		
9	23 [years]		
10	15 [muffins]		

"Math is Cool" Masters -- 2014-15

6th Grade – May 16, 2015

KEY

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
42 [feet]	**210 [sides]**	**35**	**1316**
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
8 [cu ft]	**1220 [miles]**	**1476 [squares]**	**108 [houses]**
1 or 0	1 or 0	1 or 0	2 or 0

Final Score:
(Out of 8)

"Math is Cool" Masters -- 2014-15

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

6th Grade **Mental Math** – 30 sec per question

8 problems read orally to everyone - Approximately 8% of Individual Score - 25% of team score

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor 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 change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, 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 after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

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

"Math is Cool" Masters – 2014-15

6th Grade – May 16, 2015

School Name_____Team #_____

Proctor Name _____Room #_____

Final Score:

First Score
(out of 20)

Team Multiple Choice Contest – 15 minutes – 20% of team score

This test is the only test where you will be penalized for incorrect responses. You will receive 2 points for a correct letter response, 0 points for leaving it blank and -1 point for an incorrect response. When you are prompted to begin, tear off the colored sheet, pass out a copy of the test to each team member, and begin testing. ***Since this is a multiple choice test, ONLY a letter response should be listed as an answer on the answer sheet.***

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DO NOT WRITE IN SHADED REGIONS

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

"Math is Cool" Masters – 2014-15

6th Grade – May 16, 2015

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

First Score
(out of 10)

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

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DO NOT WRITE IN SHADED REGIONS

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