"Math is Cool" Masters – 2015-16

May 21, 2016

Total Correct

KEY

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

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

4th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	30 [minutes]		
2	2		
3	30		
4	10		
5	25 [sq in]		
6	3 [people]		
7	6		
8	6		
9	-3		
10	14		
11	$3\frac{1}{2}$ [inches]		
12	4 [days]		
13	¼ [or equiv frac]		
14	96		
15	70 [%]		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	475 [mL]		
17	45 [ounces]		
18	7		
19	2		
20	0		
21	4:20 PM		
22	100π [sq in]		
23	285 or 286 [complete chunks of wood]		
24	150 [songs]		
25	45 [°] or 72 [°] (either one)		
26	8/125		
27	315		
28	24		
29	35 [%]		
30	6 [times]		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	[$] 2		
32	15 [perfect squares]		
33	1287 [small cubes]		
34	70 [°]		
35	6 [times]		
36	83 or 84 [minutes]		
37	3 [tools]		
38	120 [times]		
39	$5\sqrt{41}$ *or* $\sqrt{1025}$ [feet]		
*40	435,000 [moons, planets, and stars]		
31-40 TOTAL:			

4th Grade

*3,000 [stars], 24,000 [planets], 408,000 [moons]

Total Correct

"Math is Cool" Masters – 2015-16

May 21, 2016

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

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

4th 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:			

4th Grade

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4th 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 <u>all</u> involved. Bad sportsmanship may result in disqualification.*
- *Calculators or any other aids may not be used on any portion of this contest.*
- *Unless stated otherwise:*
  - *For problems dealing with money, a decimal answer should be given.*
  - *Express all rational, non-integer answers as reduced common fractions.*
- *For fifth and sixth grade, all fractions and ratios must be reduced.*
- *Counting or natural numbers refer to the numbers 1,2,3,4 and so on and do NOT include 0.*
- *Units are not necessary unless it is a problem that deals with time and, in that case, am or pm is needed. However, if you choose to use units, they must be correct.*
- *Leave all answers in terms of π where applicable.*
- *Do not round any answers unless stated otherwise.*
- *Record all answers on the colored cover sheets in the answer column only.*
- *Make sure all answer sheets have all the information filled out at the top of the sheet.*
- *Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will also be scored as a 0.*

<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.*

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4th Grade – May 21, 2016

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	John has five bananas and Jake has nine bananas. How many bananas should Jake give to John so that they each have the same number of bananas?
2	John will get a golden star if he gets an average of 90 on his history tests. He received an 84 on the first history test. What is the lowest score he can get on the second test to get a golden star?
3	How many seconds are in two hours?
4	What are the next two numbers in the pattern: 100, 85, 70, 55,…?
5	Melissa draws a square with side lengths of 6. What the area of this square?
6	What is the area of a flat cookie with a radius of 4? Express your answer in terms of π.
7	How many perfect squares are greater than 2 and less than 20?
8	If Manny flips a coin five times, what is the probability that he gets heads every time, expressed as a common fraction?

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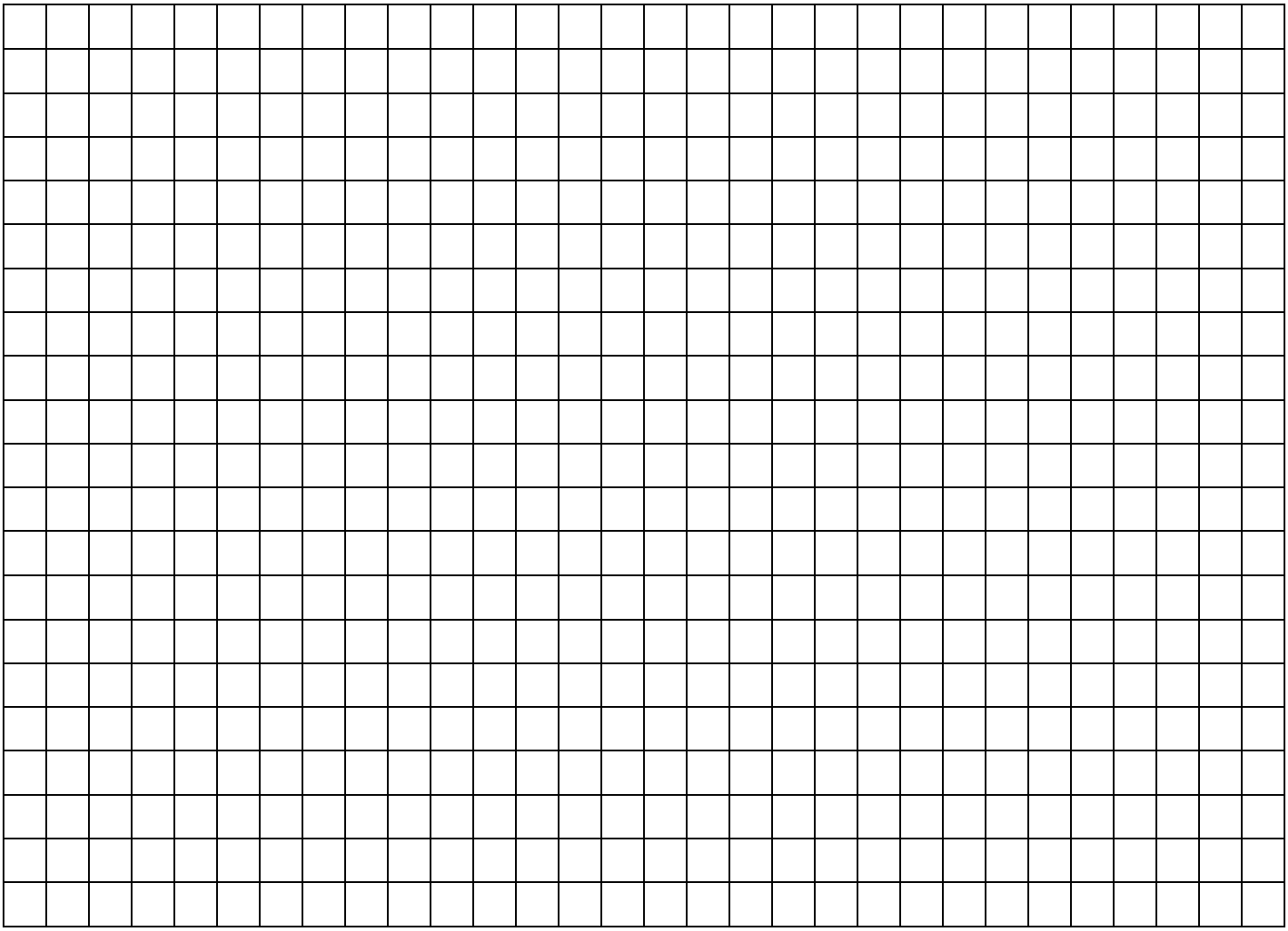
Individual Contest – 4th Grade

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.



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4th Grade – May 21, 2016

Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	If Mariana can run a mile in 6 minutes, how many minutes would it take her to run 5 miles?
2	What is the smallest prime number?
3	What is 15% of 200?
4	If an arithmetic sequence starts with the numbers, four, six, and eight, what is the next number in the sequence?
5	What is the area, in square inches, of a square with side length 5 inches?
6	If Ash has a bike, then Chris has a bike. If Chris has a bike, then Jesse has a bike. If Ash has a bike, then how many people in this question have bikes?
7	There are 3 people in a line. If order matters, how many ways can they line up?
8	There are two numbers less than 10 such that their sum 11 is and their product is 30. What is the larger of the two numbers?
9	What is 25 – 26 + 27 – 28 + 29 – 30?
10	What is the mean of 15, 18, 17, 11, and 9?
11	A sphere has a diameter of 7 inches. As a mixed number, how long is its radius?
12	It takes Tanuj 5 days to read a 200 page book. It takes Alex 4 days to read a 240 page book. Tanuj and Alex both read a 480 page book. How many more days does it take Tanuj to finish than Alex?
13	Bianca has a bag filled with 5 red marbles, 3 yellow marbles, 7 green marbles, and the rest of the marbles are blue. There are 20 marbles in the bag and she randomly selects one while blindfolded. What is the probability that she grabs a blue marble?
14	Jack and Allison are taking turns saying numbers. Jack starts with the number three, and then Allison multiplies it by two and says 6. Jack then multiplies that number by two and says the result, and so on. What is the third number that Allison says?
15	Patrick took 5 tests, one test each day. The first day he got a score of 70%, the next day his score was 83%, on day 3 he got a score of 56%, day 4 his score was 93%, and finally on the last day of testing he got a score of 69%. What is the median of his test scores?
16	Billy drinks 3 bottles of water every day. If he can drink 17,100 mL of water in 12 days, how many mL are in a bottle?
17	A cube has a volume of 16 in^3 and weighs 16 ounces. If a second cube has a volume of 45 in^3, how much does the second cube weigh, in ounces?
18	How many prime numbers are there between 20 and 50?
19	The operation & is defined such that a&b is equal to the absolute value of the difference between a and b. What is 5&3?
20	How many prime numbers between 11 and 100 are divisible by 3?

21	A lollipop-eating contest began at 1:00 p.m. and ended 200 minutes later. At what time did the contest end?
22	What is the area, in square inches, of a circle whose radius is 10 inches? Express your answer as a number times π.
23	If a woodchuck could chuck wood, it could chuck 3 chunks of wood in 12 days. Charles is a woodchuck that can chuck wood. How many complete chunks of wood could Charles chuck if he chucks wood for 3 years and 48 days?
24	Alex has 60 dollars to spend on music. Each song costs $0.40. How many songs can Alex buy?
25	An isosceles triangle has an angle that is twice as large as one of its other angles. What is the measure of the third angle? Express your answer in degrees.
26	Jerry rolls a 15-sided die 3 times. What is the probability that he will roll three prime numbers?
27	What is the least common multiple of 5, 7, and 9?
28	What is the area of a triangle with side lengths of 6, 8 and 10?
29	Hunter Zolomon took a lie detector test. Barry Allen from Earth 2 gave him the lie detector test and asked him 20 questions. The lie detector said that Hunter lied in 7 of the questions that were asked. What percent of Zolomon's answers were lies?
30	Alfred was 35 years old when he met the 8 year old Billy. Now that Alfred is 98 years old, how many times has his age been in the reverse order of Billy's since they met? E.g. When Alfred was 41, Billy was 14.

Challenge Questions: 3 points each	
31	If a game machine gives the user $5 20% of the time and $0 the other 80% of the time, what is the expected value of my winnings, in dollars, if I play the game twice?
32	How many perfect squares are between 50 and 500?
33	Because it is the year 2016, Florence has decided to make 2,016 small cubes. So far he has put together exactly enough small cubes to make a big cube with edges equal to nine times a small cube's edge. How many more small cubes does he need to make?
34	It is 6:20 right now. What is the measure, in degrees, of the smaller angle between the minute and hour hand?
35	Ellen can bounce a ball 30 times in 20 seconds. George can bounce a ball 35 times in 25 seconds. How many more times does Ellen bounce a ball in a minute compared to George?
36	Yashvi notices that the bathtub drains water at a rate of 2 milliliters per second. How many minutes would it take 10 liters to completely drain out? Round to the nearest whole minute.
37	A chair has 4 legs, a stool has 3 legs and a table has 1 leg. At a birthday party, there are 4 chairs per table and a total of 18 pieces of furniture. One of the children counts 60 legs total. How many stools are there?
38	How many times in a day is the "number" on a digital 12-hour clock equal to a multiple of 12? E.g. at 1:20, the "number" is 120, and that is a multiple of 12.
39	Leslie is measuring the length of a ladder that's leaning against a 20ft wall. She knows the distance between the bottom of the ladder and the bottom of the wall is 25ft. How many feet long is the ladder?
40	Mort the Alien eats 1,500 solar systems every day. If there is 1 star per solar system, 8 planets for every star, and 17 moons for each planet, how many moons, planets, and stars does Mort eat in 2 days?

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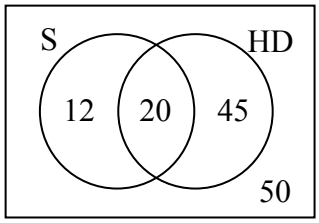
4th Grade – May 21, 2016

Team Multiple Choice Contest

Use the following for questions 1-3.

The Venn diagram shows the results of a recent survey that asked 127 people two questions: whether they liked Sushi and whether they liked Hot Dogs.



1 How many people liked Hot Dogs but not Sushi?

A) 12 B) 20 C) 45 D) 50 E) Answer not given.

2 For the data from Problem 1, how many people did not like Hot Dogs?

A) 12 B) 20 C) 50 D) 62 E) Answer not given.

3 For the data from Problem 1, if you randomly chose a person who liked Sushi, what is the probability that they would also like Hot Dogs?

A) $\frac{3}{5}$ B) $\frac{3}{8}$ C) $\frac{4}{9}$ D) $\frac{4}{13}$ E) Answer not given.

Use the following for questions 4-7:

In the Mathtathlon, students from three schools participated in four different events. The chart below shows how many students from each school participated in each event, as well as the high and average score in each event.

Event	School A	School B	School C	High Score	Avg. Score
Written	25	24	23	91	55
Relay	20	21	22	82	62
Duel	19	18	17	93	72
Hunt	14	15	16	87	73

4 If students can participate in multiple events, what is the minimum number of students who could have participated in the Mathtathlon?

A) 72 B) 45 C) 25 D) 14 E) Answer not given.

5 What was the total number of points scored by all contestants in the Hunt?

A) 3915 B) 3285 C) 1392 D) 1022 E) Answer not given.

6 Which test was the hardest for the best competitors (had the lowest high score)?

A) Written B) Relay C) Duel D) Hunt E) Answer not given.

7 Which test was the easiest for everyone (had the highest average score)?

A) Written B) Relay C) Duel D) Hunt E) Answer not given.

Use the following to answer questions 8-10.
Several cookie recipes are shown in the table below:

Ingredient	Regular	Crispy	Chewy
Butter (c)	1	1.5	.75
Sugar (c)	1	1	1.5
Eggs	2	2	3
Flour (c)	3	4	3
Baking Soda (tsp)	1	1	1.5
Yield (cookies)	24	30	20

8 I want to make one batch of each recipe to bring to the Dessert Potluck at my school's Multi-Cultural Night. How many eggs will I need to use?

A) 6 B) 7 C) 8 D) 9 E) Answer not given.

9 At the Multi-Cultural Night, someone grabs one of the cookies I brought (see Problem 4). What is the probability that they grabbed a Crispy cookie?

A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{3}{7}$ D) $\frac{15}{37}$ E) Answer not given.

10 I'm about to make cookies using the same recipes as in Problem 4, but realize I only have three cups of butter! If I have plenty of all the other ingredients, what is the largest number of cookies I can make?

A) 60 B) 72 C) 80 D) 90 E) Answer not given.

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4th Grade – May 21, 2016

Team Contest

1	A baseball diamond has four sides; each 90 feet long. If a player hits a home run, a double, and a single, how many feet has he traveled on the base paths?
2	You wake up, look at a digital clock, and multiply the digits together. (For example, if the time is 3:31, your product is $3\times3\times1=9$.) What is the largest product you can obtain?
3	Josie is 4 feet and 1 inch tall in 3rd grade. She grows 1 inch in 4th grade, 2 inches in 5th grade, 3 inches in 6th and so on until 9th grade. How many inches tall is she at the end of 9th grade?
4	Two students, Zander and Alisa, are competing in a two-lap race around a track. Alisa ran the first lap in 1 minute and 13 seconds and the second lap in 1 minute and 31 seconds. Overall, she beat Zander by 12 seconds. If Zander ran the first lap in 1 minute and 16 seconds, how many seconds did his second lap take?
5	Mr. Sand has a class of 7 students. On their last test, the average test score was a 90. However, Dylan still hasn't taken the test. After Dylan takes the test, the average becomes 86. What did Dylan score on the test?
6	How many two-digit counting numbers are divisible by 3 but not divisible by 4?
7	The first angle is 34 degrees more than the second angle, and the angles are complementary (they add up to 90 degrees). What is the degree measure of the second angle?
8	Right now, Sadie is 4 years older than Roxy. 12 years ago, the ratio of Sadie's age to Roxy's age was 6:5. How old is Sadie right now?
9	How many two digit numbers are there that are made of distinct prime digits?
10	I saw one dog pass by my house on the first day of school and one dog pass by on the second day of school. On the third day of school, two dogs passed by my house, followed by three dogs on the fourth day of school. On the fifth and sixth days of school I saw five and eight dogs, respectively, pass by my house. If this pattern in continued, how many dogs will pass by my house on the seventh day of school?

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4th Grade – May 21, 2016

Robert Dirks' Relay Contest – Questions & Key

RELAYS - 5 minutes per relay – 15% of team score

There is no talking during this event and you must always be facing forward. Person #1 will be given an answer sheet(s) and will need to fill out the top. The proctor will hand out a strip of paper to each person. These need to be face down on your desk until it is time for the relay to start. Once the relay begins, everyone may turn over their strip of paper and begin working. You may write on the strip of paper to come up with your answer. However, when person #1 figures out his/her problem, he/she will record ***just his/her final answer*** *on the answer sheet and pass only the answer sheet back to the person behind. This continues until person #4 puts an answer on the answer sheet and gives it to the proctor. A correct answer from person #1, #2 and #3 is worth 1 point each. A correct answer from person #4 is worth 2 points making each relay worth 5 points. You will see the expression* ***TNYWG*** [Proctor: write this on the board] *which means: "the number you will get". This is where you put your teammate's answer that they pass back to you, and then you should be able to solve your question. Once the relay begins, turn over your strip of paper and* ***make sure you have the right person number.*** *Remember, no talking and remain facing forward to avoid being disqualified!*

	Relay #1	**Answer**
Person 1	If widgets have 3 legs and gadgets have 5 legs, how many legs do 6 widgets and 4 gadgets have?	38 [legs]
Person 2	What is the largest counting number whose square is less than TNYWG?	6
Person 3	Given x, after subtracting TNYWG, then dividing that result by 3, the final result is 8. What is x?	30
Person 4	A rectangle has side lengths that are counting numbers when measured in inches, and has an area of TNYWG square inches. What is the maximum possible perimeter of this rectangle, in inches?	62 [inches]
	Relay #2	**Answer**
Person 1	What does $3 + 5 \times 4 \div 2 - 7$ equal?	6
Person 2	Melanie's garden is in the shape of a rectangle with sides of length TNYWG feet and 8 feet. How many feet of fencing does she need to fence in her garden on all sides?	28 [feet]
Person 3	What is the mean of 68, TNYWG, 93, and 415?	151
Person 4	A quadrilateral has three sides measuring 35 m, TNYWG m, and 9 m. What is the smallest counting number that could be the length in meters of the fourth side?	108 [m]

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	Tim is thirteen and Dan is seventeen. How old will Tim be when Dan is twenthy-three?	19 [years old]
2	Evaluate one times two times three times four times five times six.	720
3	The teachers are trying to replace the rope on the tetherball court. The pole is in the middle of a circle that is fourteen feet straight across. The rope is supposed to be half of the diameter of the circle. How many feet long is should they make the rope?	7 [ft]
4	What is the sum of the first five prime numbers?	28
5	When a single card is drawn from standard fifty-two card deck of cards, what is the probability of drawing a red card, as a percentage?	50 [%]
6	Find the next number in the sequence beginning five, eight, twelve, seventeen, and twenty-three.	30
7	Samuel has seventeen hours before his math exam. He plans to sleep for eight hours, eat for thirty minutes three times, exercise for one hour twice, practice piano for one hour and thirty minutes, and play with his sister for two hours. How many hours can he study math?	2 [hours]
8	Maya is weighing fruit. She finds out that two kiwis weigh the same as one orange, five oranges weigh the same as one cantaloupe, and three cantaloupes weigh the same as two watermelons. How many kiwis weigh the same as two watermelons?	30 [kiwis]
9	Evaluate X-squared-plus-three-X-plus-two when X equals negative one.	0
10	Ashley, with her one hundred words-per-minute typing speed, types what her professor says in lecture. Unfortunately, the professor speaks at a rate of two hundred words per minute. Two minutes into the lecture, what percentage of the professor's words has Ashley typed?	50 [%]

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COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	If a cow walks twenty feet in a minute, how may feet will the cow walk in five minutes?	100 [feet]
2	Paige has seven dollars and ninety-two cents. What is the largest number of dimes she could have?	79 [dimes]
3	Manny wants to build a fence around his rectangular garden. If his garden is thirty feet long and twenty feet wide, how many feet of fencing should Manny buy?	100 [feet]
4	Mitch is listing prime numbers, but he mistakenly listed a number that is not prime. He listed fifty-three, fifty-seven, fifty-nine, and sixty-one. Which of these numbers is not prime?	57
5	There are eight red balls and eight green balls in a box. If Nick draws one ball randomly from the box, what is the probability that it is not green?	$\frac{1}{2}$ or $\frac{8}{16}$ or equiv.
6	Find the next term of the quadratic sequence beginning with two, six, twelve, and twenty.	30
7	A beginning piano student can play at most two notes at a time. If there are ten keys on a piano, how many different two-note "chords" can the student play?	45 [chords]
8	There were seven hundred fifty-two thousand three hundred eighty-two people at a concert. If six hundred five thousand three hundred twent more people join, how many people would there be in total?	1,357,702 [people]
9	Given that N equals five, find the result of eight times the quantity five-N-plus-thirteen.	304
10	Shannon has a stride of one-and-a half feet. Richard has a stride of zero-point-seven-five feet. If each of them takes ten steps, what is the distance between the two in inches?	90 [inches]

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	Natalie washes dishes at a rate of five dishes per hour. Alexa washes dishes at a rate of three dishes per hour. How many hours will it take for them to wash forty dishes if they work together?	5 [hours]
2	Express twelve twenty-fifths as a decimal.	0.48 or .48
3	Hannah has six inches of string. If she is wrapping an equilateral triangle in the string, and each side of the triangle measures one-point-five inches, how many inches of extra string does she have after wrapping the triangle, expressed as a decimal?	1.5 [inches]
4	What is the sum of the third-smallest prime number and the fifth-smallest prime number?	16
5	Jack, Jill, and Humpty are standing in a line. In how many different orders can they arrange themselves in this line?	6 [orders]
6	What is the sum of X and Y in the geometric sequence two, four, eight, X, Y?	48
7	Number X is odd and number Y is even. Is the product of X, Y, and the quantity X-plus-Y odd, even, or sometimes each of them?	even
8	A rectangle has an area of seven square units, and all of its side lengths are integer numbers of units. What is its perimeter, in units?	16 [units]
9	A spy has received a clue. It tells him to go north one block, west two blocks, south one block, east three blocks, north one block, west two blocks, south three blocks, and north one block. If he wants to take a shortcut, but can only go in directions of north, south, west and east, what direction(s) and how far does he need to walk?	one block west and 1 block south (either order)
10	John has six quarters in his wallet. If he trades all his quarters for nickels, how many more coins will he have in his wallet after the trade?	24 [coins]

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COLLEGE KNOWLEDGE BOWL ROUND #4 – SET 4

#	Problem	Answer
1	Greg has seventy-five dollars to spend on movie tickets. If each ticket is ten dollars, how many more dollars does Greg need to be able to buy nine tickets?	15 [dollars]
2	Sophia reads five books a day. Julie reads four books a day. In a week, how many more books will Sophia have read than Julie?	7 [books]
3	A table has a length of twenty inches and a width of eight inches. What is the table's area, in square inches?	160 [square inches]
4	What is the product of the four smallest prime numbers?	210
5	In a zombie apocalypse, there are 4 different types of zombies. Walkers, Runners, Giants, and Firebreathers (scary right?!). It is known there are 4 million Giants, 9 million Walkers, 5 million Runners, and 2 million Firebreathers. What is the probability that the next zombie you see is a Firebreather?	$\frac{1}{10}$ or $\frac{2}{20}$ or equiv.
6	An arithmetic sequence begins with one, five, nine, thirteen, X, Y, and Z. What is the value of X plus Y plus Z?	63
7	If the area of a square is one hundred forty-four square meters, what is the perimeter of the square in meters?	48 [m]
8	Marina thinks of a number. I think of a number. Marina tells me her number is not prime but is divisible by both three and seven. I tell her that my number has prime factors of three and seven. What is the smallest number both of us could be thinking about, if our numbers are actually the same?	21
9	If the operation X-ampersand-Y is defined to be Y-to-the-X-power minus X-to-the-Y-power, evaluate 2-ampersand-3.	1
10	What is six-point-nine minus five-point-five as a simplified fraction?	$\frac{7}{5}$

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4th Grade – May 21, 2016

COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	Anika drives at a speed of forty miles per hour. If the beach is sixty miles away, how long will it take her to drive there? Express you answer in seconds.	5,400 [seconds]
2	Adriana is packaging cupcakes. If she has forty-two cupcakes and seven packages, how many cupcakes go in each package?	6 [cupcakes]
3	What is the measure, in degrees, of an angle that is supplementary to a thirty-two degree angle?	148 [°]
4	What is the least common multiple of fourteen and forty-nine?	98
5	There are five entrée choices for your supper and three side dishes. You are only allowed one entrée and one side. How many possible suppers are there?	15 [suppers]
6	John knows that he has one pair of green socks, one pair of blue socks, and one pair of red socks in his drawer. But, the lights are off and he cannot distinguish between different colored socks. What is the fewest number of socks he must take out from the drawer to ensure that he picks at least one pair of matching socks?	4 [socks]
7	Kaylen had twenty-three thousand, four hundred twenty dollars in her bank account. She withdrew five thousand, two hundred sixty-nine dollars to buy a TV. How many dollars are left in her bank account?	18,151 [dollars]
8	Hong opens a bag of Skittles, which contains four red, five purple, two orange, three yellow and six green Skittles. He only wants to eat the citrus Skittles (which are orange, yellow, and green). When he picks one at random, what is the probability that he does NOT eat a citrus Skittle?	$\frac{9}{20}$ [or equiv]
9	Solve the following equation for X: seventeen-minus-X is equal to two-minus-three-X-plus-seven.	$x = -4$.
10	Chico went shopping and spent seventy-one dollars and twenty-three cents on clothes. He then bought a gift for a friend that cost eight dollars and ten cents. Lastly he bought some snacks for two dollars and twenty cents. How much did Chico spend total, in dollars and cents?	81 dollars and 53 cents

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Sponsored by:

4th Grade – May 21, 2016

COLLEGE KNOWLEDGE BOWL ROUND #6 – SET 6

#	Problem	Answer
1	Aladdin is going to the market to buy Jasmine a ring. He has two magic carpets. If a ring costs three camels and a camel costs four magic carpets, how many more carpets does Aladdin need in order to buy Jasmine the ring?	10 [carpets]
2	What is the square of the quantity, five plus eight?	169
3	A Rubix Cube has nine stickers per face. How many stickers does it have in total?	54 [stickers]
4	What is the greatest common factor of sixty-eight and fifty-one?	17
5	Tom's ice-cream shop has two choices of cones, ten choices of ice-cream flavors, and five choices of toppings. If you can only have one cone, one flavor, and one topping, how many ice-cream desserts are possible?	100
6	Bernie's mother has five kids. The oldest is named One, the second oldest is named Two, the third oldest is named Three, and the fourth oldest is named Four. What is the youngest kid's name?	Bernie
7	Two cowboys agree to meet in the center of the town at noon. One is in the town, but the other must ride his horse there. If he leaves his ranch at 11 AM, his horse can travel ten miles an hour on a trot, and he has six miles to cover, how early, in minutes, will he be?	24 [minutes]
8	Jimmy got scores of ninety, eighty-eight, ninety-two, ninety-four, and eighty-six on his last five math tests. What was his average score over these five tests?	90
9	Two different integers satisfy the following: "When you square me, you also double me." What are the two integers?	0, 2 (either order)
10	What is ten and six tenths multiplied by five and three tenths rounded to the nearest tenth? Write your answer as a decimal.	56.2

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4th Grade – May 21, 2016

COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	What is one plus two plus three plus four plus five plus six plus seven plus eight plus nine plus ten?	55
2	What integer is even, but also prime?	2
3	Evaluate two thousand fifteen plus two thousand sixteen plus two thousand seventeen.	6,048
4	Victor drew a seventy-eight degree angle. Is the angle an obtuse, acute, or right angle?	Acute
5	Given the equation twenty-one-N-plus-two-equals-sixty-five, find N.	3
6	A spinner is divided into 4 colors: red, blue, green, and yellow. Red takes up ½ of the spinner. The rest of the colors each take up the same fraction of the spinner. What is the probability that the spinner does not land on yellow?	$\frac{5}{6}$ [or equiv]
7	A person who weighs one hundred pounds on Earth weighs seventy pounds on a distant planet. How much would a three-hundred-pound person weigh on the planet?	210 [pounds]
8	A pig is trapped inside a pen that is in the shape of a circle. If the circle has a circumference of 6π yards, what is the pen's radius, in yards?	3 [yards]

Final Score:

KEY

(Out of 8)

"Math is Cool" Masters -- 2015-16

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

4th 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 [bananas]		
2	96		
3	7200 [seconds]		
4	40 & 25 (this order only)		
5	36		
6	16π		
7	3 [perfect squares]		
8	$\frac{1}{32}$ [or equivalent]		

"Math is Cool" Masters – 2015-16

4th Grade – May 21, 2016

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	D		
3	E		
4	A		
5	B		
6	B		
7	D		
8	B		
9	D		
10	C		

"Math is Cool" Masters – 2015-16

4th Grade – May 21, 2016

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	630 [feet]		
2	405		
3	70 [inches]		
4	100 [seconds]		
5	62		
6	22 [two-digit counting numbers]		
7	28 [°]		
8	36 [years old]		
9	12 [two-digit numbers]		
10	13 [dogs]		

"Math is Cool" Masters -- 2015-16

4th Grade – May 21, 2016

KEY

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
38 [legs]	**6**	**30**	**62 [inches]**
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 2

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
6	**28 [feet]**	**151**	**108 [m]**
1 or 0	1 or 0	1 or 0	2 or 0

Final Score:
(Out of 8)

"Math is Cool" Masters -- 2015-16

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

4th 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			
2			
3			
4			
5			
6			
7			
8			

"Math is Cool" Masters – 2015-16

4th Grade – May 21, 2016

School Name_____Team #_____

Proctor Name _____Room #_____

Final Score:

First Score
(out of 20)

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

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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 – 2015-16

4th Grade – May 21, 2016

School Name_____Team #_____

Proctor Name_____Room #_____

Final Score:

First Score
(out of 10)

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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			