"Math is Cool" Championships – 2015-16

March 18, 2016

Total Correct

KEY

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

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

5th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	66		
2	63 [eggs]		
3	210 [soup cans]		
4	8,321,000		
5	943.0372		
6	10		
7	16/9		
8	72 [inches]		
9	8 [plants]		
10	23		
11	13/25 [or A]		
12	25		
13	21 [loaves [of bread]]		
14	40 [baseballs]		
15	354 [kph]		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	22 [pet dragons]		
17	5		
18	2808 [families]		
19	18 [factors]		
20	98 [square units]		
21	432 [sq inches]		
22	2 [units]		
23	29/70		
24	26		
25	140 [points]		
26	0 [eggs]		
27	5100 [cookies]		
28	15 [numbers]		
29	[$] 12 [per week]		
30	[Day] 7		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	92		
32	716/719		
33	8 [minutes]		
34	13 [regions]		
35	[$] 23		
36	20 [min]		
37	126 [[5-digit] num]		
38	2274 [cards]		
39	720 [days]		
40	960/11 [seconds]		
31-40 TOTAL:			

5th Grade

Total Correct

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March 18, 2016

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

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

5th 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:			

5th Grade

"Math is Cool" Championships – 2015-16

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5th 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.*

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5th Grade – March 18, 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	If a dog can chase seventeen cats, how many cats can five dogs chase?
2	What is the sum of (three hundred sixty-five) and (one hundred eighty-seven)?
3	Currently Fred is twelve years old and Ed is fifteen years old. What will the sum of their ages be in four years?
4	Biff had eighteen dollars in his piggy bank. Each week for seven weeks he put six more dollars in his piggy bank. How many dollars does he have now?
5	Sixty cows drink nine hundred gallons of water each day. How many gallons of water does each cow drink every day?
6	In a severe winter storm it was snowing at a rate of (one and a half) inches of snow every thirty minutes. How many hours would it take to snow a total of one foot?
7	Eho bought a pencil and a pencil sharpener for a total of two dollars and fifty cents. The pencil sharpener cost a dollar more than the pencil. How much, in dollars, did the pencil sharpener cost?
8	If three workers can build four houses in three months, how many workers are needed to build ten houses in (four and a half) months?

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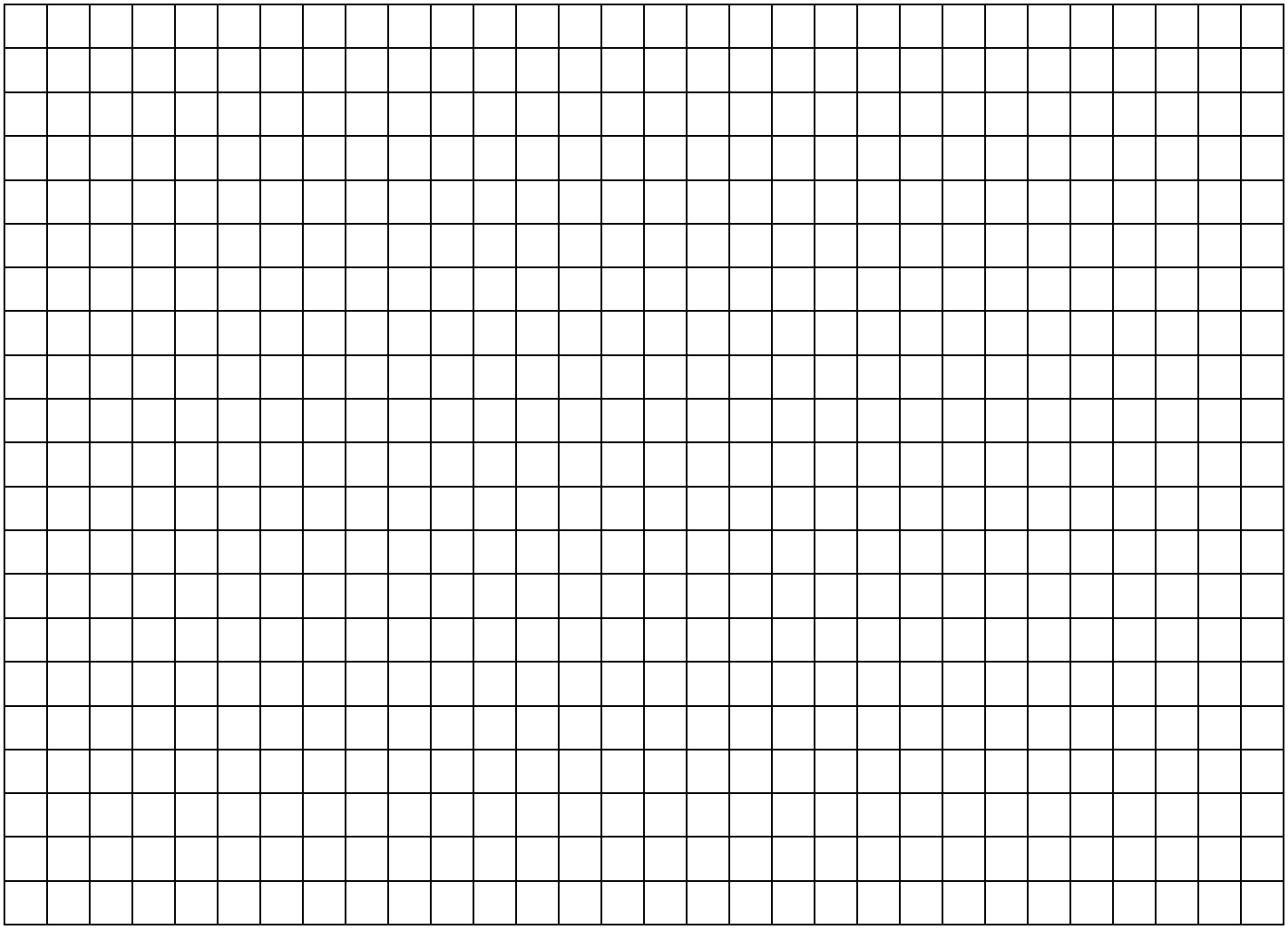
Individual Contest – 5th Grade

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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Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	What is the sum of 18 and 48?
2	Chicken Farmer Hank has 12 chickens that produce a total of 9 eggs a day. How many eggs will the chickens produce in a week?
3	A shelf is filled with soup cans. The cans are 7 cans deep and 30 soup cans long. How many soups cans are on the shelf?
4	Round 8,321,477 to the thousands place.
5	Find the sum of 32.1872 and 910.85. Express answer as a decimal.
6	If all the numbers listed are put in order from smallest to biggest, what number is in the middle? 7, 10, 4, 17, 15, 2, 11
7	Evaluate: $\frac{12}{16} \div \frac{27}{64}$ Write answer as a reduced fraction.
8	How many inches are in 6 feet?
9	The following set of data is the height, in inches, of bean plants in a garden last summer: 13, 17, 12, 21, 23, 14, 17, 18, 16, 20, 11, 10, 16. How many plants were taller than 15 inches?
10	What's the next term in the sequence? 3, 7, 11, 15, 19, ____
11	Which number is the largest number? A) 13/25 B) 36/73 C) .5 D) .4325
12	Evaluate 7m + 11 when m = 2.
13	It takes 10 pounds of flour to make 15 loaves of bread. How many loaves of bread can 14 pounds of flour make?
14	For every single baseball Jake throws, Derek throws 2. For every 2 baseballs Derek throws, Jacob throws 4. If Jake throws 10 baseballs, how many baseballs has Jacob thrown?
15	The Algebra Club made a race car that can travel at 200 miles per hour. If 88.5 kilometers per hour is equal to 50 miles per hour, how fast (in kilometers per hour) can the car travel at?

16	Ryleigh wants to buy the largest number of pet dragons as possible. One type of dragon sells for $18 for 5 dragons, and another type sells for $13 for 4 dragons. What is the largest number of pet dragons she can buy for $77, if the pet dragons must be bought in those increments?
17	What is the biggest counting number that can be put in the blank and the inequality will still be true? 3 + 7 + ___ < 16
18	For every 100 families with television sets, 12 families like watching sports. In a town of 23,400 families who all have television sets, how many families would like watching sports?
19	How many factors does 450 have?
20	What is the area of a rectangle with perimeter of 42 units and the length is twice the width?
21	Convert 3 square feet to square inches.
22	What is the shortest counting number length that the third side of a triangle can be when the other two sides are of lengths 18 and 17?
23	When the Math Team stopped to eat, 3/10 of the students went to Arby's, and 2/7 of the students went to Subway, while the rest went to Red Robin. What fractional amount of the students went to Red Robin?
24	Biff and Eho sit directly across from each other in a circle of 30 people. The members in the circle started counting off 1,2,3,4, etc. Biff said 11, what number will Eho say?
25	Meredith averaged 80 points in her first 5 bowling games and 90 points in her first 6 bowling games. How many points did Meredith score in her 6^{th} bowling game?
26	A grocery store sells eggs in half-dozen containers; however, the chicken farm delivers the eggs in crates that have 57 eggs in each crate. The grocery store receives 34 crates a day. After the eggs have been repacked into half-dozen containers, how many eggs are left over?
27	A class is selling cookies to raise money to take a trip to Mathland, an infinitely wonderful amusement park. The class has 25 students and the average number of cookies sold per classmate was 300. The least number of cookies sold by a classmate was 100. What is the most number of cookies a classmate could have sold?
28	How many numbers from 1 to 31 are multiples of 2 or 3, but not of 6?
29	Monica planned to save $3 a week for 195 weeks to buy the coolest calculator known to the human race. After saving for 43 weeks, she decided she couldn't wait as long as she initially planned. How much, in dollars, will she now have to save each week if she wants to have the calculator 81 weeks after she first started saving?

30	On day 1, a colony of bacteria had 3 bacteria. Each day the number of bacteria doubles. What will be the first day that the colony will have more than 100 bacteria?

Challenge Questions: 3 points each	
31	If A@B = 2A + 4B what is the value of 2@(3@4)?
32	The probability of a snail winning a race is 3/719. As a reduced fraction, what is the probability of the snail losing the race?
33	Shelly and Ammon both start walking from the same point. Shelly starts walking 2 minutes before Ammon starts walking at a rate of 22 feet per minute. If Ammon walks in the same direction as Shelly at a rate of 27.5 feet per minute, how many minutes will it take him to catch up to her?
34	What is the maximum number of non-overlapping regions that can be created by a circle and 3 lines?
35	The dues to be part of a national group of math teams are $1219 per math team. In LCMT, a math team that has between 40 and 100 members, each member paid an equal amount for their dues and the amount they paid in dollars was a counting number. How much did each member pay in dollars?
36	Josh was mowing a lawn that is in the shape of a square that is 2000 feet by 2000 feet. His mower is 10 feet wide; he started at one corner and went around the lawn for one round; and he has made a total of 50 rounds in one hour. How long, in minutes, will it take for him to finish mowing the lawn? Assume that the mower is mowing the lawn at a constant rate and corners take no time.
37	How many 5-digit numbers have digits that are larger than the digit before it as they are read from left to right? Examples: 12578, 35789
38	Marshawn was looking at his collection of baseball cards. When he put them in a pile of 3, 4, 12, 21, or 28, he always had one left over. If he has between 100 and 600 cards, what is the sum of the possible number of cards he could have?
39	A regular analog clock that doesn't have AM or PM on it loses 7 minutes per day. It is set to the correct time. How many full days will it before it has the correct time again?
40	Sophia and Samantha are running around a 400 meter track in opposite directions at a constant rate. Sophia can run 3 laps in 4 minutes and Samantha can run 5 laps in 8 minutes. If they both started at the same place, but head in opposite directions, how many seconds elapsed before they met for the second time on the track. (Starting together at the beginning did not count as the first meeting time.) Write your answer as a reduced common fraction.

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Team Multiple Choice Contest

Use the following information for questions 1 and 2:

At a 50 km road race, Phillip decided to keep track of his distance from the finish line throughout the race. Phillip rides at an average speed of 7.25 km per hour.

1 Two hours after the start of the race, how far, in km, is Phillip from the finish line?

A) 14.5 B) 35.5 C) 36.5 D) 42.75 E) Answer not given.

2 Ninety minutes after the race started, Greta, who was late to the race, started at the starting line riding at 12 km per hour. How long, in minutes, will Greta have been riding when she catches Phillip?

A) 140 B) 210 C) 225 D) 230 E) Answer not given.

Use the following information for questions 3, 4, 5, and 6:

The following table shows the weights of 5 cows on a ranch.

Cow 1	450 pounds
Cow 2	700 pounds
Cow 3	500 pounds
Cow 4	650 pounds
Cow 5	525 pounds

3 Wayne and Bub were sitting on the fence discussing how much weight each cow might gain in the next month. Bub figured each cow should gain 50 pounds. If each cow gained 50 pounds, how would this affect the mean of the data?

A) The mean would stay the same B) The mean would go down 50 pounds
C) The mean would go up 50 pounds D) Answer not given

4 As discussed in question 3, if each cow gained 50 pounds how would this affect the range of the data?

A) The range would stay the same B) The range would go down 50 pounds
C) The range would go up 50 pounds D) Answer not given

5 Wayne looked at Bub and said, "You gotta be kidding me, didn't you pay attention in math class in high school?" Wayne figured each cow would increase their weight by 10%. If each cow's weight increased by 10%, how would this affect the mean of the data?

A) The mean would stay the same B) The mean would decrease by 10%
C) The mean would increase by 10% D) Answer not given

6 As discussed in question 5, if each cow's weight increased by 10%, how would this affect the range of the data?

A) The range would stay the same B) The range would decrease by 10%
C) The range would increase by 10% D) Answer not given

Use the following information for questions 7, 8, 9, and 10:
Every item a clothing store sells is different — that is, no two shirts are alike, and so on. All items of a particular type cost the same. Socks are sold only in pairs, and a pair of socks counts as a single item.

Item Name:	Shirt	Pants	Pairs of Socks	Jacket	Shorts
Item Quantity:	25	12	18	6	14
Item Price:	$5.00	$20.00	$2.50	$40.00	$8.00

7	If an outfit consists of shirt, pants, jacket, and a pair of socks, how many different outfits can be made from the stock at this store? A) 32000 B) 32400 C) 32800 D) 453600 E) Answer not given.
8	How much would it cost to buy every item in stock? A) $763 B) $764 C) $766 D) $768 E) Answer not given.
9	If two items were chosen at random without replacement, what is the probability the sum of the cost of the two items would be less than $17.00? A) $\frac{1}{2}$ B) $\frac{17}{925}$ C) $\frac{532}{925}$ D) $\frac{1}{3}$ E) Answer not given.
10	Tyson went on a buying spree and bought the entire stock of the store. What was the average cost per item? A) $15.10 B) $10.06 C) $10.16 D) $10.28 E) $10.15

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Team Contest

1	What is the smallest counting number that makes $7^x > 2016$?
2	Biff and Eho are playing a game. An urn contains 45 marbles and the last person to draw a marble from the urn loses. Biff and Eho will alternate back and forth taking turns. On each turn, they must draw 1, 2, 3, 4, or 5 marbles. Biff will go first. How many marbles must he remove on his first draw to ensure that he wins?
3	A phone company advertises three different plans. Rowan is trying to choose the phone plan that would cost the least amount each month. She figures she will make an average of 700 texts per month. Plan A has unlimited texting for $62.15 per month. Plan B charges 8.9¢ per text. Plan C charges $20.00 for the first 400 texts and 14¢ for each text after that per month. How much, in dollars, will Rowan pay each month, if she chooses the cheapest plan and sends 700 texts?
4	What is the radius of the circle whose numerical value of the area is 4 times the numerical value of the circumference?
5	In one draw, as a reduced fraction, what is the probability of drawing a green marble from an urn with 5 green marbles, 7 purple marbles, and 19 yellow marbles?
6	Billy chooses a number between -5 and 15 and Robbie multiplies the number by itself. What is the smallest possible number Robbie will have after multiplying the number by itself?
7	A bus loaded with 40 people stopped and $\frac{1}{4}$ of the passenger got off and 5 new passengers boarded the bus. At the next stop 1/5 of the passengers got off and 2 new passengers got on. At the next stop $\frac{1}{2}$ of the passengers got off. How many passengers are still on the bus?
8	What is the sum of the prime factors of 2016?
9	Shelley bought a crate of eggs. When the number of eggs in the crate was divided by 3 the remainder was zero and when divided by 13 the remainder was 4 What is the least number of eggs that could be in the crate?
10	Mille's movie theatre has determined that it needs to sell at least $300 dollars' worth of movie tickets per showing of each movie to break even. The maximum capacity of the movie theatre is 100 seats. Adult tickets sell for $5 apiece and Children tickets sell for $2 apiece. How many different combinations of Adult and Children tickets can be sold to ensure the movie theatre earns a profit or at least breaks even?

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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!*

	Practice Relay	**Answer**
Person 1	What is the sum of 19 and 7?	26
Person 2	Drake is buying tickets to the latest Star Wars movie. The movie he and his friends want to see costs $4.75 per ticket. Drake has TNYWG dollars total. What is the greatest number of tickets Drake can buy?	5 [tickets]
Person 3	What is TNYWG squared?	25
Person 4	What is the quotient of 3125 and TNYWG?	125
	Relay #1	**Answer**
Person 1	Ryleigh has 3 gallons and 1 quart of Jedi juice. How many cups of Jedi juice does she have?	52 [cups]
Person 2	Ambrose gives 6 Wookiees some Stormtrooper action figures to play a game. He has TNYWG Stormtrooper action figures total. Ambrose gives each Wookiee 1 Stormtrooper action figure until all the Stormtrooper action figures are gone. How many Wookiees get exactly 9 Stormtrooper action figures?	4 [Wookiees]
Person 3	Evaluate: TNYWG^6	4096
Person 4	What is the product of TNYWG and 32?	131072
	Relay #2	**Answer**
Person 1	Ryleigh measured the growth of a bantha. In week one, it grew 2 1/2 inches. In week two, it grew 2 5/8 inches. In week three, it grew 3 1/8 inches. In week four, it grew 3 1/4 inches. How much, in inches, did the bantha grow over all four weeks? [Remember to properly reduce your answer.]	23/2 [inches] (NOT 11 1/2)
Person 2	Drake begins at the start of a path that is 20 1/4 miles long and rides his speeder bike TNYWG miles. How many more miles must he ride his speeder bike to reach the end of the path? [Remember to properly reduce your answer.]	35/4 [miles] (NOT 8 3/4)
Person 3	A rectangle has one side length of TNYWG cm, and another side length of 4 1/2 cm. What is the area, in square centimeters, of the rectangle? [Remember to properly reduce your answer.]	315/8 [square cm] (NOT 39 3/8)
Person 4	A pentagon has two side lengths of 2.24 meters, two side lengths of (the product of 0.8 and TNYWG) decimeters, and one side length of 2570 millimeters. What is the perimeter, in centimeters, of the pentagon? [Remember to properly reduce your answer.]	1335 [cm]

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	How many sides does a dodecagon have?	12 [sides]
2	What is the sum of one half and one fifth?	7/10 [must be said as "7 tenths", or "7 over 10", NOT "zero point 7"]
3	What is the difference between the number of days in the month of February in a leap year, and the number of feet in 348 inches?	0
4	What is the product of 47 and the next number in the sequence 64, 32, 16, 8, ___ ?	188
5	45 is 50% of what number?	90
6	Ambrose's cycling shop makes bicycles and tricycles. If Ambrose has 53 wheels, what is the largest number of tricycles he can make?	17 [tricycles]
7	Find the number of furlongs in the perimeter of a dodecagon with a side length of 3 furlongs.	36 [furlongs]
8	What is the smallest possible counting number length of the perimeter of an isosceles triangle which has only one side with a length of 14 wiffles?	29 [wiffles]
9	Drake pours one quart from a full gallon container of water. How many cups are left in the container?	12 [cups]
10	Ryleigh made a bunch of her specialty dessert, Tauntaun Treacle Tart, for a wedding reception. If she had made seven more tarts, she could have put three tarts on each of 42 plates, plus had one to taste test. How many dozen ... that's right ... how many dozen tarts did she make?	10 [dozen tarts]

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COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	What is 0.75 as a reduced fraction?	3/4 [must be said as "3 fourths", or "3 over 4"]
2	What is the sum of the following two values: (first), the sum of two angles that are supplementary; and (second), the sum of two angles that are complementary?	270 [degrees]
3	What is the product of 8 and 70?	560
4	An octopus has 2 eyes and 4 pairs of arms. Ambrose saw a dozen octopuses. How many total arms did Ambrose see?	96 [arms]
5	Evaluate: 8 times 8 plus 18.	82
6	The Iditarod Trail Sled Dog Race has a ceremonial start in Anchorage. The first competitor leaves at 10:02 AM. If Ambrose shows up 23 minutes before that, what time did he arrive?	9:39 AM [must have AM]
7	What is the average of the first 7 perfect squares?	20
8	What is the hundreds digit of the product of (8 million, 7 hundred sixty-five thousand, 4 hundred thirty-two) and (5 hundred thousand, 5 hundred)?	0
9	Drake has a toy chest full of lightsabers. If one-seventh of the lightsabers in his toy chest are red, one-sixth are green, and the rest are blue, then what is the ratio of non-blue lightsabers to blue lightsabers?	13 [non-blue] to 29 [blue]
10	If Ryleigh has 500 dollars and wants to buy as many 35 dollar Palpatine piñatas as possible, how many can she buy?	14 [Palpatine piñatas]

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	What is one-fifth of 20?	4
2	What is the sum of 30 and the perimeter of a rhombus with one side length of 3?	42
3	What is the product of 14 and 33?	462
4	What is the quotient when you divide 96 by the positive difference of 42 and 39?	32
5	How many inches are there in four and one-third yards?	156 [inches]
6	A palindrome is a number (or word) that reads the same both forwards and backwards. What is the smallest possible 5-digit palindrome that begins and ends with an even number, and doesn't have more than 2 of the same number?	20102
7	How many negative multiples of 6 are greater than, or equal to, negative 42?	7
8	As a mixed number, what is the median of the first 12 perfect squares?	42 1/2 [must be said as "42 and one half", NOT "42 point 5"]
9	Drake has 21 shirts, 5 sashes, and 3 pairs of pants. One outfit equals (one shirt, one sash, and one pair of pants). How many days will he have to repeat an outfit during the year of 2016?	51 [days]
10	Drake has a garden that is 30 feet by 40 feet. He put a sidewalk around the garden that is 3 feet wide. What is the outside perimeter of the sidewalk, in feet?	164 [feet]

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COLLEGE KNOWLEDGE BOWL ROUND #4 – SET 4

#	Problem	Answer
1	What is the perimeter of a rhombus with a side of length 8.5 Smoots?	34 [Smoots]
2	What is the sum of 1812 (one thousand eight hundred and twelve) and the greatest common factor of 18 and 12?	1818
3	What is the product of 7 and the amount of eggs in two dozen?	168
4	What is the remainder when 67 is divided by the next number in the sequence 1, 2, 4, 7, ___ ?	1
5	What is the area of a circle whose diameter is (pi over 2)?	pi cubed over 16
6	You count 200 legs in a herd of cows, but notice that 4 cows are each missing a leg. How many cows are in the herd?	51 [cows]
7	What is the reciprocal of the product of the following two values: the reciprocal of 6; and the reciprocal of 7?	42
8	On the planet Hoth, each great horned hydra dragon has 4 heads with 3 horns on each head. In a group of 5 great horned hydra dragons, how many horns will there be?	60 [horns]
9	The time is 10:18 AM. Drake's banjo lesson will start in 2 and one-fifth hours and will last five-twelfths of an hour. What time is it 1 hour after Drake's banjo lesson is over?	1:55 PM [must have PM]
10	Ryleigh has 3 dozen stormtrooper action figures. She gives 5 stormtrooper action figures to Drake for his birthday, and sells 6 stormtrooper action figures on eBay. She notices some new ones for sale. How many stormtrooper action figures, after buying 2 online, does Ryleigh have now?	27 [stormtrooper action figures]

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5th Grade – March 18, 2016

COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	How many prime numbers are there between 20 and 30?	2 [prime numbers]
2	What is the sum of 74 and the area of a scalene triangle with a base of 6 and a height of 8?	98
3	What is the remainder when 35 is divided by 16?	3
4	What is the product of 13 and the least common multiple of 3 and 4?	156
5	If each of the 26 letters of the alphabet is assigned a number, starting with A=1, B=2, and so on, what would be the average of the letters in the word "jedi" (spelled J-E-D-I)?	7
6	What is the area of a rectangle whose length is 8 light-years and whose width is 4 light-years?	32 [light-years squared, if they put a label it must be light-years squared, not just light-years]
7	What is the quotient of the following two values: the sum of the exterior angles of a nonagon; and the sum of the interior angles of an equilateral quadrilateral?	1
8	Ambrose has friendly mutton chops that grow 3 millimeters every week. When he woke up on December 28th, 2015, they were 3 centimeters long. He shaved them off when he woke up on March 14th, 2016, so they wouldn't interfere with his pie-eating. How long had his friendly mutton chops grown to be (in millimeters)?	63 [millimeters]
9	Drake has 7 shrewish sea dragons on Sunday. Each day after Sunday, when he wakes up, the number of his shrewish sea dragons has doubled. On what day of the week will Drake have 448 shrewish sea dragons?	Saturday
10	Drake and Ryleigh are 7 parsecs apart. Drake is flying towards Ryleigh at 3 parsecs per decade, and Ryleigh is flying towards Drake at 4 parsecs per decade. How much time will pass, in years, until they meet?	10 [years]

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COLLEGE KNOWLEDGE BOWL ROUND #6 – SET 6

#	Problem	Answer
1	What is the sum of 83 and 39?	122
2	What is the negative difference of 38 and 72?	-34
3	What is the remainder when 742 is divided by 5?	2
4	What is the average of the following two values: the mean of 617, 618, 619; and the median of 617, 618, 619?	618
5	The sum of three consecutive even counting numbers is 60. What is the largest of the three numbers?	22
6	If the perimeter of a rectangle is 16 nautical miles, what is the largest possible area of the rectangle, assuming all of the sides are counting numbers?	16 [nautical miles squared]
7	What is 15% of 25? [Remember that your answer must be a reduced common fraction!]	15/4 [must be said as "15 fourths", or "15 over 4", NOT "3 point 7 5", NOT "3 and 3 fourths"]
8	Ambrose likes to dress up his bearded ice dragon. He has 4 shirts, 6 pairs of pants, 2 hats, and 2 pair of shoes. If he needs to put only one of each item on his bearded ice dragon, how many different outfits can the bearded ice dragon wear?	96 [outfits]
9	Drake has 42 dollars. What is the greatest number of bills he could have if none of his bills are one-dollar bills?	21 [bills]
10	Drake is waiting in line for the next Star Wars movie. He counts the people in front of him, and finds that there are 42 people. He starts to count the number of people behind him, until he notices his friend Ryleigh. Ryleigh is the 67th person in line. Drake motions for Ryleigh to join him. How many people did Ryleigh cut in front of, when she joined Drake in line?	23 [people]

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COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	Drake has been making (2 thousand 5 hundred) dollars per month. He received a 4% pay raise. How much, in dollars, is he now making each month?	2600 [dollars]
2	Drake went to the pet store and bought a bearded ice dragon and a shrewish sea dragon, spending $24. The shrewish sea dragon cost half as much as the bearded ice dragon. How much, in dollars, did he pay for the bearded ice dragon?	16 [dollars]
3	On the first day, Ryleigh walked for 3 hours and 32 minutes. On the second day, she walked for 6 hours and 55 minutes. On the last day, she walked for 2 hours and 48 minutes. As a mixed number, how many total hours did she walk?	13 1/4 [hours] [must be said as "13 and one fourth", NOT "13 point 2 5"]
4	Ryleigh likes to play a certain board game that uses "walters" as its money. She played last night, and at the end of the game, Ryleigh had 57 walters. During the game she won 200 walters, lost 150 walters, won 25 walters, lost 10 walters, and lost 35 walters. How much money did Ryleigh have at the start, in walters?	27 [walters]
5	Drake is one year younger than his friend Ryleigh. The product of their ages is 650. How old is Drake, in years?	25 [years]
6	If a notebook holds 70 pages, how many pages would 8 and one-half notebooks hold?	595 [pages]
7	How many lines of symmetry does a square have?	4 [lines] [lines of symmetry]

Final Score:
KEY
(Out of 8)

"Math is Cool" Championships -- 2015-16

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

5th 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	85 [cats]		
2	552		
3	35 [years]		
4	[$] 60		
5	15 [gallons]		
6	4 [hours]		
7	[$] 1.75		
8	5 [workers]		

"Math is Cool" Championships – 2015-16

5th Grade – March 18, 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	B		
2	E		
3	C		
4	A		
5	C		
6	C		
7	B		
8	E ($762)		
9	C		
10	C		

"Math is Cool" Championships – 2015-16

5th Grade – March 18, 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	4		
2	2 [marbles]		
3	[$] 62 or [$] 62.00		
4	[r=] 8 [units]		
5	5/31		
6	0		
7	15 [passengers]		
8	12		
9	30 [eggs]		
10	1394 [combinations]		

"Math is Cool" Championships -- 2015-16

5th Grade – March 18, 2016

KEY

PRACTICE RELAY

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
26	**5 [tickets]**	**25**	**125**
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
52 [cups]	**4 [Wookiees**	**4096**	**131072**
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
23/2 [in] (not 11 ½)	**35/4 [miles (not 8 ¾)**	**315/8 [sq cr (not 39 3/8**	**1335 [cm]**
1 or 0	1 or 0	1 or 0	2 or 0

Final Score:

(Out of 8)

"Math is Cool" Championships -- 2015-16

Student Name _____ Team #_____

School Name _____ Proctor Name_____ Room #_____

5th 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" Championships – 2015-16

5th Grade – March 18, 2016

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.***

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			
2			
3			
4			
5			
6			
7			
8			
9			
10			

"Math is Cool" Championships – 2015-16

5th Grade – March 18, 2016

School Name_____ Team #_____

Proctor Name_____ Room #_____

Final Score:

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			
2			
3			
4			
5			
6			
7			
8			
9			
10			