"Math is Cool" Masters – 2016-17

May 20, 2017

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	49		
2	4 [cans]		
3	5 [cookies]		
4	975 [candies]		
5	1/8		
6	25		
7	41		
8	25%		
9	8 [primes]		
10	256 [m^2]		
11	12 [inches]		
12	5/2 [bottles]		
13	52		
14	[$] 30 [dollars]		
15	13/87		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	424 [minutes]		
17	5 [ways]		
18	169		
19	21 [years old]		
20	21		
21	5 [miles]		
22	2 [units]		
23	7		
24	5/12		
25	64 [in^3]		
26	97 [degrees]		
27	10 [ways]		
28	1/2		
29	14		
30	169π [ft^2]		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	12 [donuts]		
32	08/15/17		
33	49 [stamps]		
34	29		
35	60 [options]		
36	5/12		
37	15,840 [minutes]		
38	186 [orders]		
39	208 [$yards^2$]		
40	1500 [children]		
31-40 TOTAL:			

6th Grade

Total Correct

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May 20, 2017

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 – 2016-17

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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 <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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6th Grade – May 20, 2017

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	Phil is rolling a standard six-sided die. What is the probability that he rolls a 5?
2	What is the range of the data set, nine [PAUSE], twenty-seven [PAUSE], seventeen [PAUSE], five [PAUSE], nineteen?
3	Mildred buys a bag of thirty candies for herself and her five girlfriends. If each of them gets an equal amount of candy, how many pieces does each girl get?
4	Gary's English homework is to finish twenty percent of a novel. If the book has five hundred pages, how many pages does he need to read?
5	A circle has a circumference of twenty-PI-meters. What is the radius, in meters, of the circle?
6	If two-X-minus-forty-two-equals-eight, what does X equal?
7	Tanuj bought fifty pounds of strawberries for twenty dollars. At this price, how many pounds of strawberries can he get for six dollars?
8	Jane has three skirts, five shirts, and seven pairs of socks. If an outfit is comprised of a shirt, a skirt, and a pair of socks, how many distinct outfits does Jane have?

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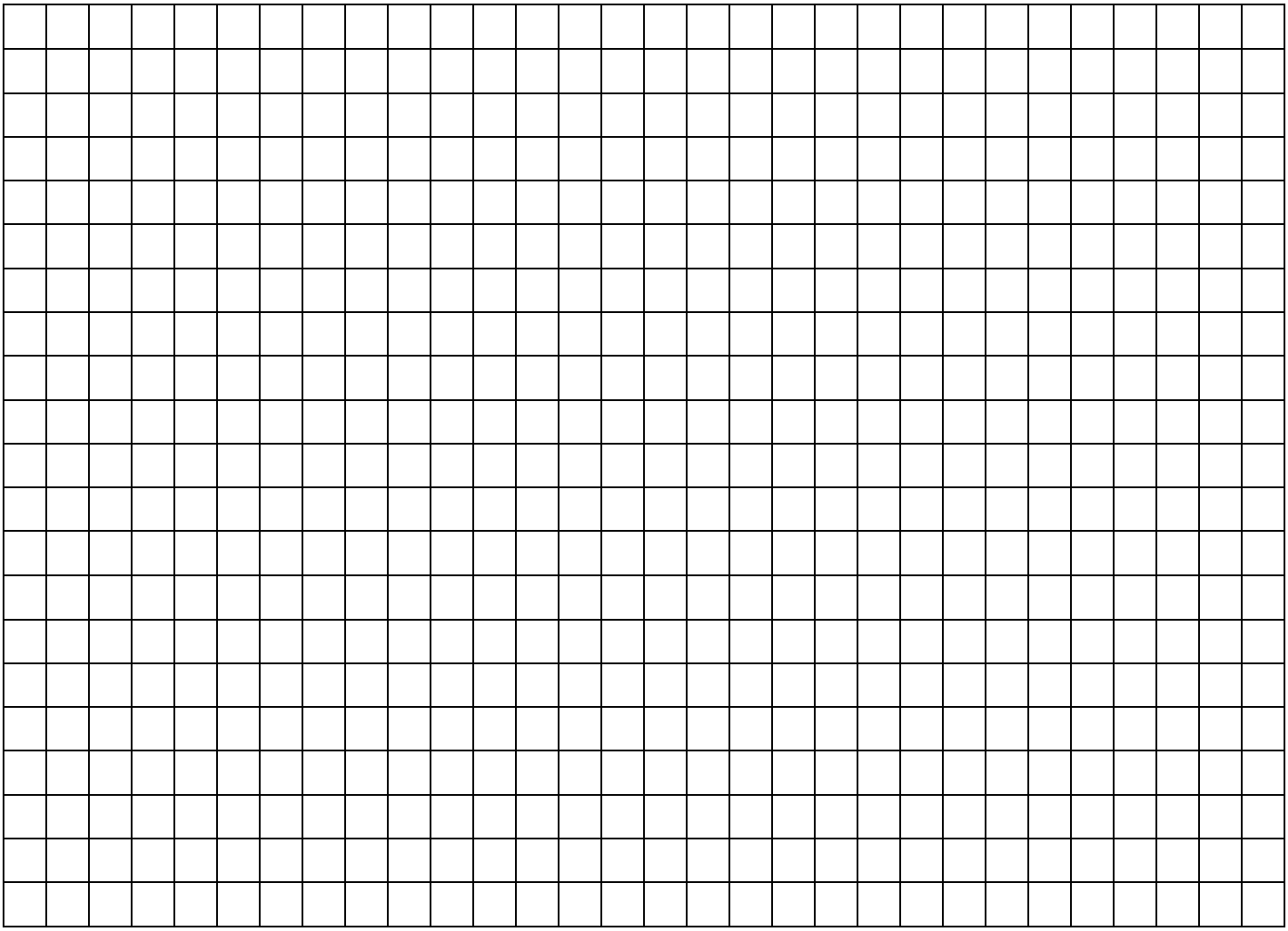
Individual Contest – 6th Grade

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.



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6th Grade – May 20, 2017

Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	What is the next number in this sequence 1, 4, 9, 16, 25, 36, ...?
2	Amy and Ben want to paint a wall that is 8 ft. tall and 20 ft. long. One can of paint covers an area of 40 square feet. How many cans of paint will be needed to paint the whole wall?
3	Amy has 3 cookies. Michael has 7 cookies. If Michael gives Amy cookies until they both have the same amount, how many cookies will they each have?
4	If a piñata contains 75 candies, how many pieces of candy would you have if you bought 13 piñatas?
5	Lilly has a lucky penny. Whenever she makes a wish and then flips heads on the penny, her wish comes true. What is the probability that her next three wishes will come true?
6	The sum of the digits of a 2-digit number is 7. When the digits are reversed, the number is increased by 27. What is the number?
7	Find the median of the data set {45, 19, 55, 37, 6, 72}.
8	At Karen's school, all kids play exactly one of soccer, basketball, or baseball. If half the kids play soccer and one fourth of the kids play basketball, what percent of the kids play baseball?
9	How many prime numbers are there between 1 and 20?
10	What is the area, in square meters, of a square with a perimeter 64 m?
11	Pete and Chuck are planning to build a fence around their lawn. Before they start building, they are drawing a map of the lawn with a scale of 1 inch = 3 feet. If the actual lawn is 36 feet long, how long is the lawn on the map, in inches?
12	Briana drinks 1 bottle of water in 2 hours during soccer practice. How many bottles does she drink during her 5-hour practice?
13	What's the smallest possible sum of two consecutive odd composite numbers?
14	Peter earned $25 one week for shoveling snow and $50 the next week. Then, he gave ⅖ of his earnings to his sister for helping him. How many dollars did he give her?
15	Kim has 7 green socks, 13 blue socks, and 10 yellow socks. What is the probability of drawing a blue sock followed by a yellow sock if the first sock drawn is *not* replaced.
16	Sam gets ready for bed at 12:39 AM, and goes to sleep 32 minutes later. If he gets up at 8:15 AM, how many minutes did he sleep?
17	Goldbach's conjecture states that any even number can be written as a sum of 2 primes, for example, 8 = 5 + 3. How many ways can 70 be written as a sum of a pair of primes?
18	What is the smallest perfect square that is written using three different digits?
19	If the average of Chuck's three sisters' ages is 7, what is their sum?
20	Solve: $\frac{81}{9} \div \frac{9}{21}$

21	Yashvi goes 3 miles up and 4 miles to the right, how many miles is she from her original point?
22	Gail lives on a coordinate system in her house at point (3, 4). Every day, she walks from her house to the mailbox at point (3, 0) and then to school at point (6,0). One day, she goes straight from her house to school. How many fewer units than normal does she walk that day?
23	How many yards are in 252 inches?
24	You need to roll 8 exactly with a pair of 6-sided dice in order to win a board game. However, you have the mystical ability to change one of the dice to a 4 if you wish. What is the probability that you win the game?
25	If a rectangular cake has an 8-inch length, 4-inch width, and a 2-inch height, what is the cakes volume in cubic inches?
26	If two of the angles on a triangle have measures of $56°$ and $27°$, what is the measure, in degrees, of the third angle?
27	Mr. Rigsbee needs to choose 3 of his 5 posters to put on the wall. How many ways can he choose the 3 posters out of 5 to put up (order does not matter)?
28	What is the probability of rolling a prime number on a fair six-sided die?
29	5 people pick whole numbers from 1 to 50. The mode is the square root of the median, the median is the square root of the range, and the mean is the mode cubed. What is the second largest number?
30	Eric the farmer has a goat named Miles. Eric ties Miles to a stake and lets Miles graze 13 feet out from his stake. What is the area, in square feet, in which Miles can graze? [Express answer in terms of π.]

Challenge Questions: 3 points each	
31	Sandra has 64 donuts. She gives half to Jimmy. Then, she gives 25% of the donuts she has left to Bill. After that, she gives half of her remaining donuts to Ann. How many donuts does Sandra give to Ann?
32	12/20/16 was a date such that the numbers in the date could be the sides of a right triangle. On what date in August 2017 can the numbers in the date equal the sides of another right triangle? (Answer in the form mm/dd/17.)
33	If Reynold has 255 rare stamps and Riley has 157 rare stamps, how many stamps should Reynolds give Riley so that they both have an equal number of stamps?
34	Of the 4 Tuesdays that occur in a 30-day month, 2 of them take place on a square day (e.g. the 4th of the month). What is the sum of the other 2 days that month that are Tuesdays?
35	Billy the spider has three different color socks, five different colored hats, and four different colored scarfs. If an outfit consists of exactly one sock, one hat, and one scarf, how many different options does Billy have for an outfit today?
36	There is a $\frac{1}{3}$ chance that it will rain today. If it does rain, there is a $\frac{3}{4}$ chance that Sarah will stay home. If it does not rain, there is only a $\frac{1}{4}$ chance that she will stay home. What is the probability that Sarah stays home?
37	Julie will buy a new pair of shoes in 11 days. How many minutes must she wait before she can buy her new shoes?
38	In a volleyball team of 6 people, the ball can be hit once, twice, or three times before it must be sent over the net. The same person cannot hit the ball twice in a row, but this person can hit the ball the first and the third time. How many different orders can the 6 players hit the ball before it is sent over the net?

39	Kathy's rectangular yard is 48 feet long and 39 feet wide. What is the area, in square **yards**, of Kathy's yard?
40	Richa and Yashvi are going to Jamaica with their school, They plan on attending a fair where the admission for children is $1.50 and $4.00 for adults. On a specific day, 2200 people enter the fair and $5050 is collected. How many children attended?

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Team Multiple Choice Contest

Use the following information to answer questions 1-3. In a survey of 216 Undertale players, 120 liked Papyrus, 120 liked Sans, and 96 liked Flowey. 12 liked all three characters, and 18 liked none of the three. 42 liked both Papyrus & Flowey, and 42 liked only Papyrus.	
1	What fraction of the surveyed people liked Sans? A) $\frac{1}{9}$ B) $\frac{1}{3}$ C) $\frac{4}{9}$ D) $\frac{5}{9}$ E) Answer not given.
2	I randomly choose a person from the Undertale survey above and they say they do not like Flowey. What is the probability that they do not like Sans? A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) $\frac{2}{3}$ D) $\frac{3}{4}$ E) Answer not given.
3	In the Undertale survey above, how many of the surveyed players did not like Sans, but did like Flowey and Papyrus? A) 30 B) 36 C) 42 D) 48 E) Answer not given.
Use the following information to answer questions 4-6. A cube of white plastic with edges measuring 15 meters is painted blue on five faces and then cut into cubes with edges measuring 3 meters.	
4	What is the total surface area, in square meters, of all the small cubes described above? A) 13500 B) 6750 C) 3375 D) 2250 E) Answer not given.
5	How many of the small cubes described above are blue on exactly one face? A) 48 B) 54 C) 57 D) 60 E) Answer not given.
6	What is the volume, in cubic meters, of all the small cubes described above that have at least one blue face? A) 2160 B) 2403 C) 2646 D) 2889 E) Answer not given.

Use the following information to answer questions 7-10. On Mr. E's last test, students received scores of 54, 33, 87, 43, 76, 76, and 45.	
7	What is the median score? A) 43 B) 45 C) 54 D) 76 E) Answer not given.
8	Mr. E promised a pizza party if the class average was at least 60, so it all rests on the student who was sick and still needs to take the test. What is the lowest score she can get to earn the class the pizza party? A) 63 B) 66 C) 74 D) 79 E) Answer not given.
9	The sick student ended up with a score of 94, and the pizza was delicious! Later, a different student retook the test and achieved a higher score, causing the mode to be greater than the mean, which was greater than the median. What is the lowest possible integer value of the new score? A) 46 B) 48 C) 53 D) 56 E) Answer not given.
10	The same test was given to the five students in Miss Take's class. In that class, the mean was 60, the median was 65, and the mode was 75. What is the largest possible value of the range? A) 54 B) 56 C) 60 D) 62 E) Answer not given.

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Team Contest

1	Chad only eats apples from his own apple tree. At 9 AM on day 1, there are 50 apples on the tree. If one new apple grows every night, and Chad eats two apples every day at noon, on which day (e.g. Day 17) will there first be zero apples on the tree?
2	How many counting numbers are factors of 112?
3	Isaac wants to mix fruit punch and lemonade together to make his perfect drink, which has a 5:3 ratio of fruit punch to lemonade. He currently has Drink A with a 3:1 ratio and Drink B with a 1:1 ratio. What ratio of Drink A to Drink B should Isaac mix to make his perfect drink?
4	Rewrite the expression $\frac{1}{2}+\frac{3}{4}+\frac{1}{8}+\frac{3}{2}+\frac{1}{4}-\frac{1}{2}$ as a reduced, improper fraction.
5	Monika owns a tiny house on a lot shaped like a rectangle with a width that is twice its length. If the perimeter of the lot is 60 feet, what is the length of the lot, in feet?
6	A competition has a round-robin stage and a single-elimination tournament. In the round robin, each of the 12 teams play the other 11 once, and the top 8 advance to the tournament. How many total games are needed to decide 1st, 2nd, and 3rd place?
7	Two angles are supplementary. If one angle is 36° less than twice the other angle, what is the measure, in degrees, of the larger angle?
8	The sum of two counting numbers equals twice their product. What is their difference?
9	Erin and Sam have two magical dice. Once a day, Erin and Sam roll their respective dice. If Erin rolls a 5 on his dice and Sam rolls an even number on his dice, there will be thunder that day. What is the probability that there is thunder on any given day?
10	You want to make a long sequence of numbers. You start with the number 15. At each step, if the number is even, you divide it by 2 to get the next number. However, if the number is odd, you multiply it by 5 and add 1 to get the next number. What is the smallest number you will write down?

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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!*

	Relay #1	**Answer**
Person 1	The tooth fairy has made a new law. She says that only if you lose your tooth on Monday, Wednesday, Saturday, or Sunday, will she give you a gift (money). You lose a tooth on a random day of the week. What is the probability that you DON'T get a gift from the tooth fairy?	$\frac{3}{7}$
Person 2	A triangle has a height of $7\times TNYWG$ meters and a base of 4 meters. What is the triangle's area, in square centimeters?	6 [m^2]
Person 3	Caitlyn wants to make $4\times TNYWG$ cupcakes, and she wants a 2:1 volume ratio of cupcake to frosting. If one cupcake has a volume of 24 in^3, what is the total volume of frosting she needs for all the cupcakes?	288 [in^3]
Person 4	Jane is four times as old as her brother. In $\frac{TNYWG}{48}$ years, Jane will be twice as old as her brother. How old is Jane's brother now, in years?	3 [years]
	Relay #2	**Answer**
Person 1	Tim, Kim, and Joe are the only participants in a race. In how many ways can Tim, Kim, and Joe finish the race?	6
Person 2	What is the range of the data set {15, TNYWG, 7, 8, 48, 34, 28, 10, 23, TNYWG, 26, 8, 17}?	42
Person 3	If you pick 1 marble from 2 jars each, and Jar 1 has 1 red marble and 1 blue marble, while Jar 2 has 1 yellow and $\frac{TNYWG}{14}$ green marbles. What is the probability to have picked 1 blue marble and 1 yellow marble?	$\frac{1}{8}$
Person 4	Suppose Yashvi, the slow turtle, can paint the entire castle in twelve hours, and Sahil, the speedy painter, takes only $\frac{1}{TNYWG}$ hours. How many minutes would it take the two painters together to paint the castle?	288 [minutes]

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COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	Lucy has forty dollars to spend at the book store. Novels cost six dollars, comic books cost five dollars, and textbooks cost seven dollars. If she must buy at least one of each type, and her goal is to buy the most books possible, how many dollars will she have left over?	[$] 2 [dollars]
2	What is the range of the following set of data? ten-and-two tenths, [PAUSE] twenty-five-and-seven tenths, [PAUSE] four-and-three tenths, [PAUSE] fourteen-and-five tenths, [PAUSE] twelve-and-nine tenths?	21.4
3	Kate can read five pages of a book in seven minutes. If the book is two-hundred-ten pages long, how many minutes will it take Kate to read the entire book?	294 [minutes]
4	What value of G satisfies three-G-plus-nineteen-equals-seventy?	17
5	Chelsea bakes a cherry pie that has a circumference of four-PI inches. All the cherries inside the pie have been flattened, and each have a circumference that is one-fourth as large as the pie's. What is the circumference, in inches, of one cherry? [Leave your answer in terms of pi.]	π (PI) [inches]
6	What is the area, in square meters, of a square with a perimeter of thirty-six meters?	81 [m^2]
7	Each number of the Fibonacci (Fib-O-Not-Chee) sequence is the sum of the two numbers before it. For example, the beginning of the sequence is [PAUSE BETWEEN NUMBERS] 1, 1, 2, 3, 5, 8, 13. What is the largest Fibonacci number less than one hundred?	89
8	What is the remainder when two-hundred-seventy-five-thousand-three-hundred-twenty-nine is divided by three?	1
9	In four years, Barry will be half of Kate's age. If Kate is currently twenty-six years old, how old is Barry currently?	11 [years old]
10	Billy and Cynthia live on a coordinate system. Billy lives at the point seven-COMMA-three and Cynthia lives at the point thirteen-COMMA-eleven. How many units apart are their houses?	10 [units]

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COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	What is the area, in square meters, of a right triangle with sides measuring five, three, and four meters?	6 [m^2]
2	Andrew runs seven miles North, then turns East. How many miles should he run East if he wants the shortest distance from his final point to his starting point to be twenty-five miles?	24 [miles]
3	Alex bought ninety pounds of rice for thirty dollars. At this price, how many pounds of rice can he get for six dollars?	18 [pounds]
4	Convert eight square feet to square inches.	1152 [in^2]
5	What is the twentieth term of the arithmetic sequence if the first four terms of are three, ten, seventeen, and twenty-four?	136
6	The school lunch service provides one dessert to each student. The first student gets carrot cake, the next gets a scone, the third gets pudding, the next gets a chocolate chip cookie, and then the pattern repeats, with the fifth student receiving carrot cake, etc. If this pattern continues, which dessert will the twenty-eighth student in line receive?	Chocolate chip cookie
7	A new function is defined and it is called A-star-B. A-star-B is defined as four times A plus the quantity 6 times B. What is the value of three-star-the-quantity-five-star-ten?	492
8	What value of X satisfies eleven-plus-three-X-minus-seven-equals-six-X-plus-five-minus-three-X?	No solution (or equivalent)
9	A small square cake of side two-X is cut from the corner of a rectangle with a width of ten centimeters and length of twenty centimeters. Write a simplified expression in terms of X for the area of the remaining shape.	200 - 4 x^2
10	Piper bakes PI pumpkin pies. If each pumpkin pie is cut into PI equal pieces, how many pieces of pie are there? Assume PI-equals-three-and-fourteen hundredths. Express your answer as a decimal.	9.8596 [pieces]

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	Yash sees that the Go-Pro is on sale at a twenty-five percent discount, and realizes he has a coupon for an additional twenty-five-percent off! If the first discount must be applied first, followed by the second discount, how many dollars will he pay for the Go-Pro if the original price was four hundred dollars?	225 [dollars]
2	Yash's father is forty-five years old. He is fifteen years older than twice Yash's age. How old is Yash?	15 [years old]
3	What is the smallest composite number that is a factor of thirty?	6
4	Llamas always form herds with a number of members that is prime. Llama herds also must have at least fifteen llamas to ensure safety. What is the smallest number of llamas that can be found in a herd?	17 [llamas]
5	What is twenty percent of six hundred?	120
6	A square waffle is comprised of sixteen congruent square indentations, and the perimeter of the waffle is sixteen inches. What is the perimeter, in inches, of each indentation?	4 [inches]
7	How many ways are there to arrange the letters in the word ALGEBRA, spelled A-L-G-E-B-R-A?	2520 [ways]
8	At Jerry's farm, there are seven sheep, four cows, two horses, six hens, and a pig. He picks one animal at random to accompany him to the county fair. What is the probability that he chooses to take a cow?	1/5
9	Penny's pencil bag contains four blue ink pens, eleven black ink pens, three colored pencils, and seven graphite pencils. If she randomly grabs two writing utensils from her pencil bag, what is the probability that she grabs one colored pencil and one black ink pen?	11/100
10	Miles lives four miles east and three miles south of a peanut farm. If Miles can walk three miles an hour, how many **minutes** will it take him to walk to the peanut farm if he takes the most direct route?	100 [minutes]

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COLLEGE KNOWLEDGE BOWL ROUND #4 – SET 4

#	Problem	Answer
1	If a large safe is a rectangular prism with a height of fourteen feet, a width of two feet, and a length of one foot, what is the volume, in cubic feet, of the safe?	28 [cubic feet]
2	Kate has ten dollars. She buys three pencils that each cost seventy-five cents and two erasers that cost two dollars each. How much money, in dollars to the nearest hundredth (cent), does Kate have remaining?	[$] 3.75 [dollars]
3	Oliver only likes cherry-flavored candy. A candy jar contains five cherry candies, six lemon candies, and three orange candies. If Oliver randomly picks one piece of candy, what is the probability that he will NOT like that piece?	9/14
4	What is the perimeter, in meters, of a square with an area of one hundred forty-four square meters?	48 [m]
5	A snowman has a volume of fifty liters at the start of the day, and begins to melt at a rate of two liters per hour during the day and one liter per hour at night. If the day and night are each twelve hours long, how many hours will it take for the snowman to melt?	31 [hours]
6	A triangle has an area of thirty square centimeters and a height of five centimeters. What is the width, in centimeters, of a rectangle having the same area and height as the triangle?	6 [cm]
7	Srinija has test scores of seventy, one-hundred, ninety, eighty-five, and seventy. What is the minimum score she must get on her sixth test to maintain an average test score of eighty-five?	95
8	Barry has two fair, six-sided dice. He rolls them onto a table. What is the probability that he rolls two sixes?	1/36
9	What is the sum of the counting numbers from one to fifty, inclusive?	1275
10	If the ratio of two supplementary angles is eight-to-one, what is the measure of the smaller angle?	20 [degrees]

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6th Grade – May 20, 2017

COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	Cinderella had eight dollars and fifty cents. She spent a-dollar-twenty-five on material for a dress and gave her two stepsisters each a-dollar-twenty. How much money was left, in dollars, rounded to the nearest hundredth (cent)?	[$] 4.85 [dollars]
2	What is the next number in the sequence beginning 3 hundredths, twelve hundredths, forty-eight hundredths, one and ninety-two hundredths? [Express your answer as a decimal.]	7.68
3	A Hungarian sheep dog requires a forty square foot yard. To save money on fencing, her owner plans to make her yard in the shape of a right triangle, using her fifteen-foot-long garage as one leg of the triangle. How long should the other leg of the triangle be to ensure that the Hungarian sheep dog has a sufficiently large yard?	16/3 [ft] (sixteen thirds)
4	If the prime numbers between twenty and fifty are considered as a data set, which is largest, the mean, median, mode, or range?	Median
5	Barry can paint three portraits in five hours. If he paints for seventy straight hours, how many portraits can Barry paint in this time?	42 [portraits]
6	If Richie can paint a house in four hours, and Caitlin can paint the same house in six hours, how many **minutes** will it take for them to paint the house together?	144 [minutes]
7	Jane is drinking a twenty-milliliter cup of coffee containing an additional two milliliters of cream to lessen its bitter taste. However, she is still dissatisfied with her coffee, and she adds three milliliters more cream. What percent of her drink is now cream?	20 [%]
8	Find the area of a circle with a six-inch radius in terms of PI.	36π [in^2] ■
9	An isosceles triangle has an angle measuring forty degrees. What is the largest possible positive difference, in degrees, of the other two angles?	60 [degrees]
10	Jacob's class has thirty-nine students. On a day off, twenty-five students went to the Art Institute and nineteen went to the Science Museum. If four students went to neither attraction, how many went to both?	9 [students]

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COLLEGE KNOWLEDGE BOWL ROUND #6 – SET 6

#	Problem	Answer
1	If Barry charges $5.00 for each hour of yardwork and it takes him 7 hours to complete a job, how many dollars will Barry earn?	[$] 35 [dollars]
2	How many diagonals can be drawn in a regular hexagon?	9
3	Evaluate three-to-the-fifth-power.	243
4	What value of X satisfies seventeen-X-minus-twelve-equals-one-hundred-fourteen-plus-three-X?	9
5	Rounded to the nearest integer, what is the mean of the set [PAUSE BETWEEN NUMBERS] {7, 3, 6, 5, 7, 2, 12, 10, 19}?	8
6	If Jimmy has three shirts, two pants, one pair of socks, and five types of shoes, how many possible combinations of complete outfits can he have?	30 [outfits]
7	A farmer has many chickens and rabbits on his farm. When the chickens and rabbits come together, there are 60 heads and 160 legs. How many rabbits are there?	20 [rabbits]
8	What is the area of a rectangle with perimeter of twenty-four centimeters and a length twice its width?	32 [cm^2] ■
9	Angles C and F are supplementary. If the measure of Angle C is twenty-five degrees, what is the measure of Angle F?	155 [degrees]
10	A newly planted succulent is four inches tall. After one day, the succulent is six inches tall. After two days, the succulent is nine inches tall. After three days, the succulent is thirteen-and-a-half inches tall. If this pattern continues, how tall will the succulent be after five days? [Express your answer as a mixed number.]	30 3/8 [inches] (Thirty-and-three-eighths)

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COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	Beatrice can run two meters every second. If she runs for three hours at this speed, how many meters will she have run?	21,600 [meters]
2	Beneath a city, a pipeline is four thousand feet long. Another pipeline is parallel to that pipeline, but is seven thousand feet long. How far away from the end of the first pipeline do the pipelines intersect?	They do not intersect. [accept any answer that says something along the lines of "impossible"]
3	When Vladimir boards the Trans-Siberian Railroad, there are 12 people on the train, including him. At the first stop, 3 people get off and 2 more get on. When the train stops again, 4 people get off and 2 get on. At the final stop, all of the passengers get off, including Vladimir. How many passengers get off at the final stop?	9 [passengers]

Final Score:

KEY

(Out of 8)

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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	1/6		
2	22		
3	5 [pieces]		
4	100 [pages]		
5	10 [meters]		
6	25		
7	15 [pounds]		
8	105 [outfits]		

"Math is Cool" Masters – 2016-17

6th Grade – May 20, 2017

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

"Math is Cool" Masters – 2016-17

6th Grade – May 20, 2017

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	[Day] 49		
2	10		
3	1:2 or 1/2		
4	21/8		
5	10 [feet]		
6	74 (games)		
7	108 [degrees]		
8	0		
9	1/12		
10	1		

"Math is Cool" Masters -- 2016-17

6th Grade – May 20, 2017

KEY

RELAY # 1

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
3/7	**6 [m²]**	**288 [in²]**	**3 [years]**
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	**42**	**1/8**	**288 [min]**
1 or 0	1 or 0	1 or 0	2 or 0

Final Score:

(Out of 8)

"Math is Cool" Masters -- 2016-17

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 – 2016-17

6th Grade – May 20, 2017

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" Masters – 2016-17

6th Grade – May 20, 2017

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			