"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 8)*

Room #	School Name	Student Name	Team #

Mental Math – ~25% of team score & ~8% of individual score

All students in the room will concurrently be asked the same eight questions in this individual test. 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 or her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.*

STUDENT: DO NOT WRITE IN SHADED REGIONS (or anywhere else, other than the answer box)

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Key

Mental Math Contest – Answer Key

30 seconds per question – ~25% of team score & ~8% of individual score

SCORERS — Write-overs, Cross-outs, and Erasures Must be Marked Incorrect (0)
Bracketed items […] in the answer key are optional.

4th Grade

	Answer	
1	40	What is twenty-two plus eighteen?
2	4 [snickerdoodles]	Ben has seven snickerdoodles. He shares three of his snickerdoodles with his younger sister. How many snickerdoodles does he have now?
3	2 [M&Ms]	If Ella wants to split ten M&Ms equally among herself and her four friends, how many M&Ms does each person get?
4	0	What is the product when you multiply all of the digits in eight-thousand-seven-hundred-nine?
5	6	What is the average of two, five, seven, and ten?
6	5 [missions]	Your robotics team can solve 3 missions in 9 days of practice. At this rate, how many missions will they solve in 15 days?
7	35 [nickels]	How many nickels are equal to five quarters and 5 dimes?
8	3 [units]	The height of a triangle is twice its base. If the area of this triangle is nine square units, what is its base?

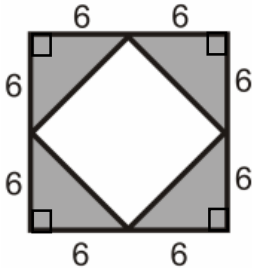
"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Individual Contest

Record all answers on the colored cover sheet. 35 minutes, 40 problems, ~92% of individual score.
No talking during this individual test. A 5-minute time warning will be given.

	Questions 1-30: 2 points each
1	What is the positive difference between 345 and 159?
2	Round 7926.1847 to the nearest hundredth.
3	How many sides does a nonagon have?
4	Find the next term in the arithmetic sequence: 2, 5, 8, ____.
5	What is the product of 24 and 5?
6	What number is halfway between 26 and 8?
7	Yadira is making scrambled eggs for her math team. If she bought 5 dozen eggs and used 37 of them, how many eggs does she have left?
8	What is the measure of an angle that is supplementary to an angle measuring 76 degrees?
9	Today is Friday. Andrea's birthday was two days ago. Her best friend's birthday is 25 days after Andrea's birthday. What day of the week will it be when it is her friend's birthday?
10	Calculate: $7^2 + 50$
11	Leah makes mistakes twice during the span of 30 minutes while doing her math homework. If she continues making mistakes at the same rate, how many mistakes will Leah make during 4 hours of math homework?
12	An equilateral triangle has a side length of 9. What is its perimeter?
13	Calculate the product: 3/4 times 1/2.
14	Alan is playing Fortnite against Manuel. There are 98 other players in their Battle Royale match. As a common fraction, what is the probability that either Alan or Manuel wins (assuming everyone has an equal chance of winning?
15	Bryson wants to buy a new carpet for his bedroom. If the length of the room is 10 feet and the width is 13 feet, what is the area of the carpet he must buy?
16	Write $5\frac{1}{6}$ as an improper fraction.

17	Hali starts playing with LEGOs at 10:40 AM. If she plays with LEGOs for 178 minutes, what time does she finish playing with LEGOs?
18	Rosaline is a competitive swimmer. She has won 10 races and lost 5 races. What fraction of all her races did Rosaline win?
19	When Carly is 4 years old, Will is 3 times her age. How old will Carly be when Will is 21?
20	A triangle has a base of 9 and a height of 15. What the area of the triangle, as a decimal to the nearest tenth?
21	Gannon has a favorite 3-digit number. The second digit is twice as big as the first digit. The third digit is three less than the second digit. What is the largest possible value for Gannon's favorite number?
22	The "Baby Shark" song has received 2,300,000,000 views on YouTube. If the owner of the video gets 1/10 of a penny for each view, how much have they earned in dollars from YouTube views?
23	Tehya and her friend Miguel have a lot of pet cats. Miguel has twice as many cats as Tehya. All together their cats have 24 eyes. How many cats does Tehya have?
24	A rectangle measures 12 meters by 5 meters. What is its area in square centimeters?
25	Naomi is sharing a Hershey bar with her friends. She gives 1/3 of it to her friend Rachel, then 1/4 to her friend Tyler, and then 1/12 to her friend Cameron. If a Hershey bar is evenly divided into 12 pieces, how many pieces of Hershey bar does Naomi have left?
26	Write the fraction 6/8 as a percentage.
27	Kyleen can complete one math question every three minutes. If there are thirty-five questions on her math test, how many hours, rounded to the nearest hundredth, does it take Kyleen to finish the test?
28	Little brown bats can eat half their body weight in insects every night. If a single bat weighs 8 grams, how much would it eat during the months of June, July, and August? (Assume the bat does not gain body weight during this time.)
29	How many different ways are there to arrange the letters in the word LION?
30	Find the area of the unshaded portion of the figure. 

Continued on Next Page

Challenge Questions: 3 points each	
31	What is one-fourth of two-sixths of 5?
32	I am making a cleaning solution with one-part of bleach to every fifteen parts of water. If I use 1/3 cup of bleach, how many cups of water do I need?
33	AJ earns $5 for every lawn he mows. If AJ can mow four lawns per day, how many weeks would it take him to save seven hundred dollars?
34	An obtuse isosceles triangle has a base angle of forty-three degrees. What is the positive difference between the other two angles?
35	What is the ones digit of 3^{15}?
36	A farmer owns pigs and ducks. When counted, there are forty heads and one-hundred-sixteen legs. How many ducks are there?
37	A shirt that I want to buy costs $17.50 after the price has been reduced by thirty percent. What was the original price of the shirt in dollars?
38	Justin wants to finish reading his book. He has read 1/3 of his book already. He reads 25 pages every Monday, Wednesday, Thursday, and Saturday. Justin's book is 600 pages long. If today is Sunday, what day of the week will he finish reading the book?
39	At MathCity Intermediate School, exactly half of their students participate in one or more extra-curricular activities. In total, 60 students are on the robotics team, 80 students participate in Math Is Cool (MIC), and 100 students are in the school band. Of those students, 10 students participate in only robotics and MIC, 15 students participate in only MIC and band, 12 students participate in only robotics and band, and 30 students participate in all three activities. How many total students attend MathCity Elementary?
40	What is the sum of: $100 - 1 + 99 - 2 + 98 - 3 + \ldots + 51 - 50$

"Math Is Cool" Championships – 2019-20

KEY

Individual Contest – Answer Key

SCORERS: Bracketed […] items in answer key are optional. Just mark the score as 0 or 1 and add up those values to reflect total correct. First Scorer – use the right-hand columns so 2nd scorer can do a blind scoring.

	Answer
1	186
2	7926.18
3	9 [sides]
4	11
5	120
6	17
7	23 [eggs]
8	104 [degrees]
9	Sunday
10	99
11	16 [mistakes]
12	27 [units]
13	3/8 or equivalent
14	2/100 or 1/50
15	130 [sq. feet]

	Answer
16	31/6
17	1:38 PM
18	10/15 or 2/3
19	13 [years old]
20	67.5 [units]
21	485
22	[$] 2,300,000
23	4 [cats]
24	600,000 [cm^2]
25	4 [pieces]
26	75 [%]
27	7/4 [hours] (or 105/60 or equiv.)
28	368 [grams]
29	24 [ways]
30	72 [sq. units]

	Answer
31	10/24 or 5/12 or equivalent
32	5 [cups]
33	5 [weeks]
34	51 [degrees]
35	7
36	22 [ducks]
37	[$] 25
38	Saturday
39	286 [students]
40	2500

4th Grade

February 28, 2020

"Math Is Cool" Championships – 2019-20

Total Correct (all columns)

Room # _____ SCHOOL NAME _____ STUDENT NAME _____ Team # _____

Individual Contest – Score Sheet

STUDENTS: 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

February 28, 2020

Scorers: Just score as 0 or 1 and add up those values (i.e., just work with number correct).

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Team Multiple Choice Contest

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #1 THROUGH #5.

Mamba Juice is a drink shop that sells smoothies, juices, fruit boosters, and drinkable yogurts in sizes small, medium, and large. The table lists prices by size and type.

Size	Smoothie	Juice	Fruit booster	Yogurt
Small	$3.00	$2.35	$2.00	$2.65
Medium	$3.75	$2.75	$2.25	$2.95
Large	$4.50	$3.15	$2.50	$3.25

1 How much money does Hannah need to purchase two large fruit boosters and one medium smoothie?

A) $8.50 B) $9.00 C) $8.65 D) $8.75 E) Answer Not Given

2 Mamba Juice is offering a buy one, get one 50% off deal on any two drinks. Together, Hannah and her sister Rebecca buy two large smoothies with the deal. How much money did they spend?

A) $4.50 B) $5.25 C) $9.00 D) $6.75 E) Answer Not Given

3 Rebecca is the Math Team Coach and she orders drinks for her whole team. How much cheaper would it be for her to order 21 medium juices than 21 medium yogurts?

A) $4.95 B) $4.20 C) $4.25 D) $3.75 E) Answer Not Given

4 The ratio of fruit pieces to juice (measured in cups) in the smoothies is 2:1. If Mamba Juice used 40,892 cups of fruit pieces last year in their smoothies, how many cups of juice were used in smoothies last year?

A) 20,228 B) 20,441 C) 20,446 D) 20,481 E) Answer Not Given

5 Hannah and three of her friends went to Mamba Juices. Each girl bought one drink. The prices of her friends' drinks were: $3.00, $3.75, and $2.25. If the average price of all four of their drinks was $3.00, what drink did Hannah order?

A) Small smoothie B) Large fruit booster C) Medium juice
D) Small yogurt E) Answer Not Given

Continued on Back Side

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #6 THROUGH #10.

Keeper of the Lost Cities Series by Shannon Messenger

Book #	Title	Release Date	Pages
1	Keeper of the Lost Cities	October 2, 2012	488
2	Exile	October 1, 2013	592
3	Everblaze	November 4, 2014	642
4	Neverseen	November 3, 2015	688
5	Lodestar	November 1, 2016	704
6	Nightfall	November 7, 2017	832
7	Flashback	November 6, 2018	880
8	Legacy	November 5, 2019	817
9	?????	?????, 2020	????

6 If the release date pattern continues, which of the following will be the most likely release date of Book 9 in the series?

A) February 20, 2020 B) March 16, 2020 C) June 20, 2020
D) August 12, 2020 E) November 4, 2020

7 Shannon Messenger's books increased in length as the series grew. What is the difference between the average number of pages in her first 3 books, and the average number of pages in her most recent three books?

A) 269 B) 304 C) 574 D) 843 E) Answer Not Given

8 If Alejandra reads 40 pages a day, how many days will it take her to read the first 3 Keeper of the Lost Cities books?

A) 34 B) 40 C) 45 D) 52 E) Answer Not Given

9 Legacy was released how many days after the first Keeper of the Lost Cities book was released? Note: 2012 and 2016 were leap years.

A) 2555 B) 2556 C) 2589 D) 2590 E) Answer Not Given

10 Leah can read 30 pages an hour. She was so excited to read Legacy that she read straight through until she finished, except for a 12-minute snack break after every 6 hours of reading. If Leah started reading Legacy at 9:00 AM. At what time did she finish reading?

A) 1:02 PM B) 9:36 PM C) 11:54 PM D) 5:10 AM E) Answer Not Given

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Key

Team Multiple Choice Contest – Answer Key

4th Grade

Correct responses are worth 2 points, incorrect responses are worth -1 point, and absence of a response is worth 0 points.

	Answer
1	D
2	D
3	B
4	C
5	A
6	E
7	A
8	E (43.05)
9	D
10	A

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 20)*

Room # _____ **School Name** _____ **Team #** _____

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 two points for a correct letter response, zero points for leaving it blank, and minus one point for an incorrect response. When you are prompted to begin, tear off the colored answer sheet, pass out a copy of the test to each team member, and begin testing. ***ONLY a letter response should be listed as an answer on this answer sheet.***

Correct responses are worth 2 points, incorrect responses are worth -1 point, and absence of a response is worth 0 points.

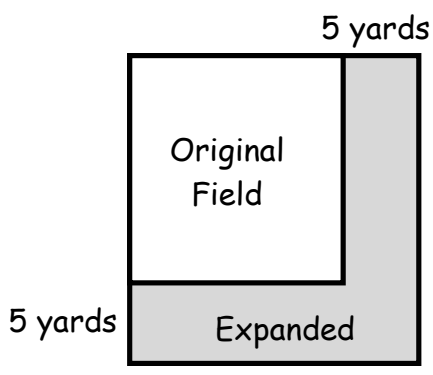
STUDENTS: DO NOT WRITE IN SHADED REGIONS

		Scorer 2	Scorer 1
Answer		-1, 0, or 2	-1, 0, or 2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Team Contest

1	Zara is walking at a steady pace of 2 ½ miles per hour. After 4 hours, how many miles has Zara walked?
2	Eric was doing a mental math problem, in which he was to subtract 6 from a certain number and then multiply the difference by 7. However, Eric mixed up the order and first multiplied by 7, then subtracted 6, getting 22. What was the correct answer to the math problem?
3	What is the remainder when 123,456,789 is divided by 9?
4	The Arctic is warming at a rate of 0.225°C every 6 months. If it warms at a constant rate, how much will the Arctic warm in five years?
5	What is the surface area, in square centimeters, of a right rectangular prism with edges measuring 3 cm, 6 cm, and 2 cm?
6	Grace and Lily are throwing darts at a target. If Grace has a 60% chance of hitting the target, and Lily has a 50% chance of hitting the target, what is the probability that they both hit the target? Answer as a percentage.
7	What is 5/6 of 1/2 of 4/5 of 15?
8	A palindrome is a number that reads the same backwards and forwards. For example, 1221 is a palindrome. What is the product of the third largest 3-digit palindrome and the smallest 2-digit palindrome?
9	A lemonade pitcher contains 370 milliliters (mL) of lemonade. You have cups that can hold 310 mL, 260 mL, and 170 mL. You pour all of the lemonade into the three glasses so that each glass is filled to the same fraction of the cup capacity. What volume of lemonade did you pour into the smallest of the cups?
10	Two sides of a square field are increased by five yards, as seen in the diagram. This causes the area of the field to increase by 155 square yards. Find the area of the original field in square yards. 

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Key

Team Contest – Answer Key

4th Grade

	Answer
1	10 [miles]
2	-14
3	0
4	2.25 [°C]
5	72 [cm^2]
6	30 [percent]
7	5
8	10,769
9	85 [mL]
10	169 [sq. yards]

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 10)*

Room # _____ **School Name** _____ **Team #** _____

Team Contest – 15 minutes – ~30% of team score

When you are prompted to begin, tear off the colored answer 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 this colored answer sheet.

STUDENTS: DO NOT WRITE IN SHADED REGIONS

	Answer	Scorer 2 0 or 1	Scorer 1 0 or 1
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
4th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Relay Contest – Questions & Key

RELAYS - 2 relays, 5 minutes per relay, 4 problems per relay, ~15% of team score

There is no talking during this event and you must always be facing forward. The proctor will hand out a strip of paper to each person containing problem(s). These need to remain 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, but first make sure you have the right person number. Person #1 receives a full problem to solve. Questions 2-4 will be missing a number and will show the acronym "TNYWG" (meaning "the number you will get") as a placeholder in the problem statement. The answer for the previous question (i.e., received from the teammate in front of you) should be inserted into the problem statement in place of "TNYWG." Person #1 will have problem #1 on his/her paper. Person #2 will have problems #1 and #2 printed on his/her paper. Person #3 will have problems #2 and #3 on his/her paper and Person #4 will have problems #3 and #4 on his/her paper. You may write on the strip of paper to come up with answers to the problems on your strip of paper. However, when person #1 figures out his/her problem, he/she will record ONLY his/her final answer on the answer sheet and pass only the answer sheet back (without turning around) to the person #2. Person #2 has the option of changing Person #1's answer if he/she wants, by crossing it out and putting a new answer. Once Person #2 records at least an answer for problem #2 on the answer sheet, he/she passes only the answer sheet behind to Person #3. Repeat these steps until person #4 puts an answer on the answer sheet and gives it to the proctor. Teams with only three members can position themselves in positions 2-4 and thus provide answers for all four problems. The raw score will be 1 point for correct answers to problems 1-3 and 2 points for question 4. Any non-answer text (i.e., scratch work or notes) on the answer sheet will result in a score of 0 for the entire Relay.

Relay Practice		**Answer**
Quest. 1	Rebecca has 12 Beanie Boos and Anson has 8 Beanie Boos. How many do they have all together?	20 [Beanie Boos]
Quest. 2	How many inches are there in TNYWG feet?	240 [inches]
Quest. 3	What is TNYWG divided by 15?	16
Quest. 4	Find the square root of TNYWG.	4
Relay #1		**Answer**
Quest. 1	How many days are there in the month of March?	31 [days]
Quest. 2	What is the perimeter of a square, if each side is TNYWG units in length?	124 [units]
Quest. 3	What is 2/5 times (TNYWG + 1)?	50
Quest. 4	How many miles will a car travel between 4:12 PM and 7:18 PM on the same day, if it is travelling at a constant speed of TNYWG miles per hour?	155 [miles]
Relay #2		**Answer**
Quest. 1	What is the product of 16 and 11?	176
Quest. 2	You have TNYWG stickers. You give 4 stickers to each of your 42 best friends. How many stickers do you have left?	8
Quest. 3	There are TNYWG people in a room. How many unique handshakes are possible if everyone shakes everyone else's hand?	28 [handshakes]
Quest. 4	Josh has a paper route. He delivers the same number of papers each day, except Saturday and Sunday, when he delivers twice as many papers as he delivers on a weekday. Starting on a Monday, he delivers 972 papers in TNYWG days. How many papers does he deliver on a normal weekday?	27 [papers]

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY — PRACTICE ROUND

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
0 or 1	0 or 1	0 or 1	0 or 2
Proctor — (circle value)	Proctor — (circle value)	Proctor — (circle value)	Proctor — (circle value)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY — PRACTICE ROUND

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
0 or 1	0 or 1	0 or 1	0 or 2
Proctor — (circle value)	Proctor — (circle value)	Proctor — (circle value)	Proctor — (circle value)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY #1

Answer for question # 1		Answer for question # 2		Answer for question # 3		Answer for question # 4	
0 or 1		0 or 1		0 or 1		0 or 2	
Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY #1

Answer for question # 1		Answer for question # 2		Answer for question # 3		Answer for question # 4	
0 or 1		0 or 1		0 or 1		0 or 2	
Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY #2

Answer for question # 1		Answer for question # 2		Answer for question # 3		Answer for question # 4	
0 or 1		0 or 1		0 or 1		0 or 2	
Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

"Math Is Cool" Championships — 2019-20

4th Grade — February 28, 2020

Final Score *(out of 5)*

Room # _____ **School Name** _____ **Team #** _____

RELAY #2

Answer for question # 1		Answer for question # 2		Answer for question # 3		Answer for question # 4	
0 or 1		0 or 1		0 or 1		0 or 2	
Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)	Scorer 1 (circle value)	Scorer 2 (checkmark)

Fill in your answer and pass this sheet back to the next person without turning around.
No scratch work is allowed on this answer sheet.

Relay Practice – Person 1	
Question 1	Rebecca has 12 Beanie Boos and Anson has 8 Beanie Boos. How many do they have all together?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 1	
Question 1	Rebecca has 12 Beanie Boos and Anson has 8 Beanie Boos. How many do they have all together?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 2	
Question 1	Rebecca has 12 Beanie Boos and Anson has 8 Beanie Boos. How many do they have all together?
Question 2	How many inches are there in TNYWG feet?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 2	
Question 1	Rebecca has 12 Beanie Boos and Anson has 8 Beanie Boos. How many do they have all together?
Question 2	How many inches are there in TNYWG feet?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 3	
Question 2	How many inches are there in TNYWG feet?
Question 3	What is TNYWG divided by 15?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 3	
Question 2	How many inches are there in TNYWG feet?
Question 3	What is TNYWG divided by 15?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 4	
Question 3	What is TNYWG divided by 15?
Question 4	Find the square root of TNYWG.

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay Practice – Person 4	
Question 3	What is TNYWG divided by 15?
Question 4	Find the square root of TNYWG.

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay #1 – Person 1	
Question 1	How many days are there in the month of March?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay #1 – Person 1	
Question 1	How many days are there in the month of March?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay #1 – Person 2	
Question 1	How many days are there in the month of March?
Question 2	What is the perimeter of a square, if each side is TNYWG units in length?

"Math Is Cool" Championships — 2019-20, 4th Grade — February 28, 2020

Relay #1 – Person 2	
Question 1	How many days are there in the month of March?
Question 2	What is the perimeter of a square, if each side is TNYWG units in length?

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Relay #1 – Person 3	
Question 2	What is the perimeter of a square, if each side is TNYWG units in length?
Question 3	What is 2/5 times (TNYWG + 1)?

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Relay #1 – Person 3	
Question 2	What is the perimeter of a square, if each side is TNYWG units in length?
Question 3	What is 2/5 times (TNYWG + 1)?

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Relay #1 – Person 4	
Question 3	What is 2/5 times (TNYWG + 1)?
Question 4	How many miles will a car travel between 4:12 PM and 7:18 PM on the same day, if it is travelling at a constant speed of TNYWG miles per hour?

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Relay #1 – Person 4	
Question 3	What is 2/5 times (TNYWG + 1)?
Question 4	How many miles will a car travel between 4:12 PM and 7:18 PM on the same day, if it is travelling at a constant speed of TNYWG miles per hour?

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Relay #2 – Person 1	
Question 1	What is the product of 16 and 11?

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Relay #2 – Person 1	
Question 1	What is the product of 16 and 11?

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Relay #2 – Person 2	
Question 1	What is the product of 16 and 11?
Question 2	You have TNYWG stickers. You give 4 stickers to each of your 42 best friends. How many stickers do you have left?

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Relay #2 – Person 2	
Question 1	What is the product of 16 and 11?
Question 2	You have TNYWG stickers. You give 4 stickers to each of your 42 best friends. How many stickers do you have left?

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Relay #2 – Person 3	
Question 2	You have TNYWG stickers. You give 4 stickers to each of your 42 best friends. How many stickers do you have left?
Question 3	There are TNYWG people in a room. How many unique handshakes are possible if everyone shakes everyone else's hand?

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Relay #2 – Person 3	
Question 2	You have TNYWG stickers. You give 4 stickers to each of your 42 best friends. How many stickers do you have left?
Question 3	There are TNYWG people in a room. How many unique handshakes are possible if everyone shakes everyone else's hand?

Relay #2 – Person 4	
Question 3	There are TNYWG people in a room. How many unique handshakes are possible if everyone shakes everyone else's hand?
Question 4	Josh has a paper route. He delivers the same number of papers each day, except Saturday and Sunday, when he delivers twice as many papers as he delivers on a weekday. Starting on a Monday, he delivers 972 papers in TNYWG days. How many papers does he deliver on a normal weekday?

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Relay #2 – Person 4	
Question 3	There are TNYWG people in a room. How many unique handshakes are possible if everyone shakes everyone else's hand?
Question 4	Josh has a paper route. He delivers the same number of papers each day, except Saturday and Sunday, when he delivers twice as many papers as he delivers on a weekday. Starting on a Monday, he delivers 972 papers in TNYWG days. How many papers does he deliver on a normal weekday?

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Room # _____ **School Name** _____ **Team #** _____

Total Score for Each Round

College Bowl #1 (10 Possible)	College Bowl #2 (10 Possible)	College Bowl #3 (10 Possible)

DO NOT USE TALLY MARKS ON THIS SHEET. WRITE THE TOTAL SCORE FOR EACH ROUND.

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Room # _____ **School Name** _____ **Team #** _____

Total Score for Each Round

College Bowl #1 (10 Possible)	College Bowl #2 (10 Possible)	College Bowl #3 (10 Possible)

DO NOT USE TALLY MARKS ON THIS SHEET. WRITE THE TOTAL SCORE FOR EACH ROUND.

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Proctor Copy

Mental Math Contest

MENTAL MATH – 30 seconds per question – ~25% of team score & ~8% of individual score

All students in the room will concurrently be asked the same eight questions in this individual test. 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 or her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before the next question is read. You may continue to work on a problem (in your head) while the next question is being read. The raw score is 1 point per correct answer.*

1	What is twenty-two plus eighteen?	
2	Ben has seven snickerdoodles. He shares three of his snickerdoodles with his younger sister. How many snickerdoodles does he have now?	
3	If Ella wants to split ten M&Ms equally among herself and her four friends, how many M&Ms does each person get?	
4	What is the product when you multiply all of the digits in eight-thousand-seven-hundred-nine?	
5	What is the average of two, five, seven, and ten?	
6	Your robotics team can solve 3 missions in 9 days of practice. At this rate, how many missions will they solve in 15 days?	
7	How many nickels are equal to five quarters and 5 dimes?	
8	The height of a triangle is twice its base. If the area of this triangle is nine square units, what is its base?	

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Key

Relay Contest – Answer Key

(Proctor — Hide this Key from View of Competitors. Items in brackets [•] are optional.)

RELAY — PRACTICE ROUND

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
20 [Beanie Boos]	240 [inches]	16	4

RELAY #1

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
31 [days]	124 [units]	50	155 [miles]

RELAY #2

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
176	8	28 [handshakes]	27 [papers]

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Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	Camille hikes three miles every hour. How many hours does it take for her to hike twenty-one miles?	7 [hours]
2	What is the perimeter of a hexagon with side lengths of eight?	48 [units]
3	Completely reduce the fraction fifteen-twentieths.	3/4
4	How many sides does a dodecagon have?	12 [sides]
5	What is the positive square root of thirty-six?	6
6	What is seventy percent of sixty?	42
7	Dobby has a basket with 6 red socks, 7 yellow socks, 12 green socks, and 3 white socks. The lights are out and he cannot see anything. How many socks would he need to take from the basket to be guaranteed to have two socks of the same color?	5 [socks]
8	How many edges does a cube have?	12
9	How many degrees will the hour hand of an analog clock move between noon and 3 pm on the same afternoon?	90 [degrees]
10	What is the area of triangle with a base of four and a height of five?	10 [units]

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Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	What is the positive difference between five hundred four and two hundred eighty-seven?	217
2	Phyllis has three dollars to spend on candy. If each piece of candy costs fifteen cents, how many pieces can she buy?	20 [pieces]
3	How many prime numbers are between zero and twenty?	8
4	An outfit consists of a shirt, pants, and shoes. If Biff has 10 shirts, 7 pairs of pants, and 2 pairs of shoes, how many different combinations of outfits are possible?	140 [outfits]
5	What is the area of a rectangle with side lengths of fourteen and twenty-two?	308 [units^2]
6	Find the average of the following set of numbers: 14, 8, 17, 15, 11.	13
7	Owen has forty-three pencils. He decides to give two pencils away to everyone in his class and keep 2 pencils for himself. If his class has a total of twenty-seven students, how many more pencils will he have to buy?	11 [pencils]
8	How many pints are in two gallons?	16 [pints]
9	Eho is 4 feet 9 inches tall, and Biff is 5 feet 7 inches tall. How many inches taller is Biff than Eho?	10 [inches]
10	What is the greatest three-digit number?	999

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Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	What is the quotient of seventy-two and six?	12
2	What is the positive difference between twenty-three and seventy-seven?	54
3	Patrick's favorite number is half of Gina's number. Gina's favorite number is half of twenty-four. What is Patrick's favorite number?	6
4	You are buying pencils for your Math Is Cool team. Each of the 26 members of your team needs 4 pencils. If pencils come in boxes of 20 pencils each. How many boxes of pencils do you need to buy?	6 [boxes]
5	What is the product of fifteen and eighty-five?	1275
6	What is the greatest common factor between seventy-seven and fifty-six?	7
7	How many diagonals does a trapezoid have?	2 [diagonals]
8	What is the degree measure of the angle complementary to sixty-seven degrees?	23 [degrees]
9	Convert zero-point-seven-three to a common fraction.	73/100 or "73 over 100" or "73 hundredths"
10	What is the sum of the digits in two-thousand-twenty?	4

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Key

COLLEGE BOWL ROUND #4

#	Problem	Answer
1	What is the product of sixteen and one-half?	8
2	What is ninety-three plus one hundred seventeen?	210
3	What is two-fifths plus three-fifths?	5/5 or 1
4	What is the sum of the first six even counting numbers?	42
5	There is a snake in one of Woody's boots, but he doesn't know which one. If Woody has nine pairs of boots, what is the probability that a snake is in any single boot?	1/18
6	If two angles in a triangle are thirty-five degrees and ninety-two degrees, what is the measure of the third angle?	53 [degrees]
7	If I roll a fair, six-sided die, what is the probability that I will roll an odd number?	3/6 or $\frac{1}{2}$ or equivalent
8	A soccer field is 110 meters long. How long is a soccer field in centimeters?	11,000 [cm]
9	I am a quadrilateral. I have four equal angles, but not all of my sides are the same length. What is the most precise name for my shape?	rectangle
10	What is the greatest common factor of 9 and 16?	1

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Key

COLLEGE BOWL ROUND #5

#	Problem	Answer
1	If Thanos collects one infinity stone every thirteen days, what is the greatest number of days it could take him to collect all seven infinity stones?	91 [days]
2	Jonathan is selling Gatorade for fifty dollars per case. How many cases would two thousand dollars buy?	40 [cases]
3	What is the largest whole-number of degrees that an angle measure can be and still be an acute angle?	89 [degrees]
4	How many ways can you rearrange the letters in the word PIG?	6
5	Angela has three quarters, seven dimes, five nickels, and nine pennies. How many cents total does she have?	179 [cents]
6	John says his number is two times bigger than Tracy's number divided by two. What is John's number if Tracy's number is twenty-four?	24
7	What is fourteen squared?	196
8	What is the smallest non-prime counting number?	1
9	Winky has four black socks and seven blue socks in a sack. What is the probability that Winky will randomly draw a blue sock without looking?	7/11
10	What is two-thousand-seventy-five rounded to the nearest hundred?	2,100

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Key

COLLEGE BOWL ROUND #6

#	Problem	Answer
1	What is the product of the number of sides of an octagon and the number of faces of a cube?	48
2	What is the product of the first five counting numbers?	120
3	If today is Wednesday, what day will it be eighteen days from now?	Sunday
4	Sarah has a bill of sixty-five dollars at a restaurant. She wants to pay a twenty percent tip. How many dollars total would she have to pay, including the tip?	78 [dollars]
5	What is the greatest prime factor of two-thousand-twenty?	101
6	There are 7 students on a robotics team. How many different ways can they choose a captain and co-captain?	42 [ways]
7	What is the volume of a rectangular prism with a height of eight, length of eight, and width of two?	128 [sq. units]
8	If two dice are rolled, what is the probability that the sum of the values rolled is one?	0
9	What is seven-eighths of fifty-six?	49
10	What is the sum of five hundred twelve and one hundred twenty-three?	635

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Key

COLLEGE BOWL — EXTRA Qs

#	Problem	Answer
1	How many sides does a heptagon have?	7
2	What is the average of eighteen and forty?	29
3	What is the largest two-digit prime number?	97
4	How many diagonals does a hexagon have?	9 [diagonals]
5	What is the product of eighty-seven and twelve?	1044
6	As a common fraction, what is four-sixths of two?	8/6 or 4/3