

"Math is Cool" Championships - 2018-19

#sponsor

#date

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, both competitors and observers. Display of poor sportsmanship may result in disqualification.*
- *Calculators or any other aids may not be used on any portion of this contest.*
- *Unless stated otherwise, all rational, non-integer answers need to be expressed as reduced common fractions except in case of problems dealing with money. In the case of problems requiring dollar answers, answer as a decimal rounded to the nearest hundredth (ie, to the nearest cent).*
- *All radicals must be simplified and all denominators must be rationalized.*
- *Units are not necessary as part of your answer unless it is a problem that deals with time and in that case, a.m. or p.m. is required. 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 (name, team number, etc.) at the top of the sheet filled out.*
- *Tests will be scored as a 0 if answers are not recorded on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will 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

*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.*

Final Score:

(Out of 8)

"Math is Cool" Championships -- 2018-19

School: _____ Room # _____ Team # _____

Name: _____ Proctor: _____

5th Grade Mental Math - 30 sec per question

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

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

"Math is Cool" Championships - 2018-19

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5th Grade - #date

Mental Math Contest

Mental Math - 30 sec per question

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

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#	Problem
1	What is the product of seven and eight?
2	What is the next number in the arithmetic sequence that starts as follows: one, four, seven, ten, thirteen?
3	If it takes three dogs to chase seven cats, how many dogs will it take to chase forty-nine cats?
4	If one van can haul six mathletes at most, how many vans are needed to transport thirty-eight mathletes to the math contest?
5	Biff rolled two six-sided dice. In how many ways can a sum of five be obtained?
6	Nine clowns were each holding five balloons when a windstorm came up, and three of the clowns each lost two balloons. How many total balloons do the clowns have now?
7	Eho spent twice as much money on a calculator as he did a protractor. If he spent a total of fifteen dollars, how much did Eho spend on the calculator?
8	John can run at a speed of twenty feet per second and Bobby can run six hundred ten feet every thirty seconds. How many feet further will Bobby run than John in one minute?

"Math is Cool" Championships -- 2018-19

School: _____ Room # _____ Team # _____

Name: _____ Proctor: _____

Final Score:

KEY

(Out of 8)

5th Grade Mental Math - 30 sec per question

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

*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	56
2	16
3	21 [dogs]
4	7 [vans]
5	4[ways]
6	39 [balloons]
7	[\$]10
8	20 [feet]

"Math is Cool" Championships - 2018-19

#date

Total # Correct:

STUDENT NAME: _____ School 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			

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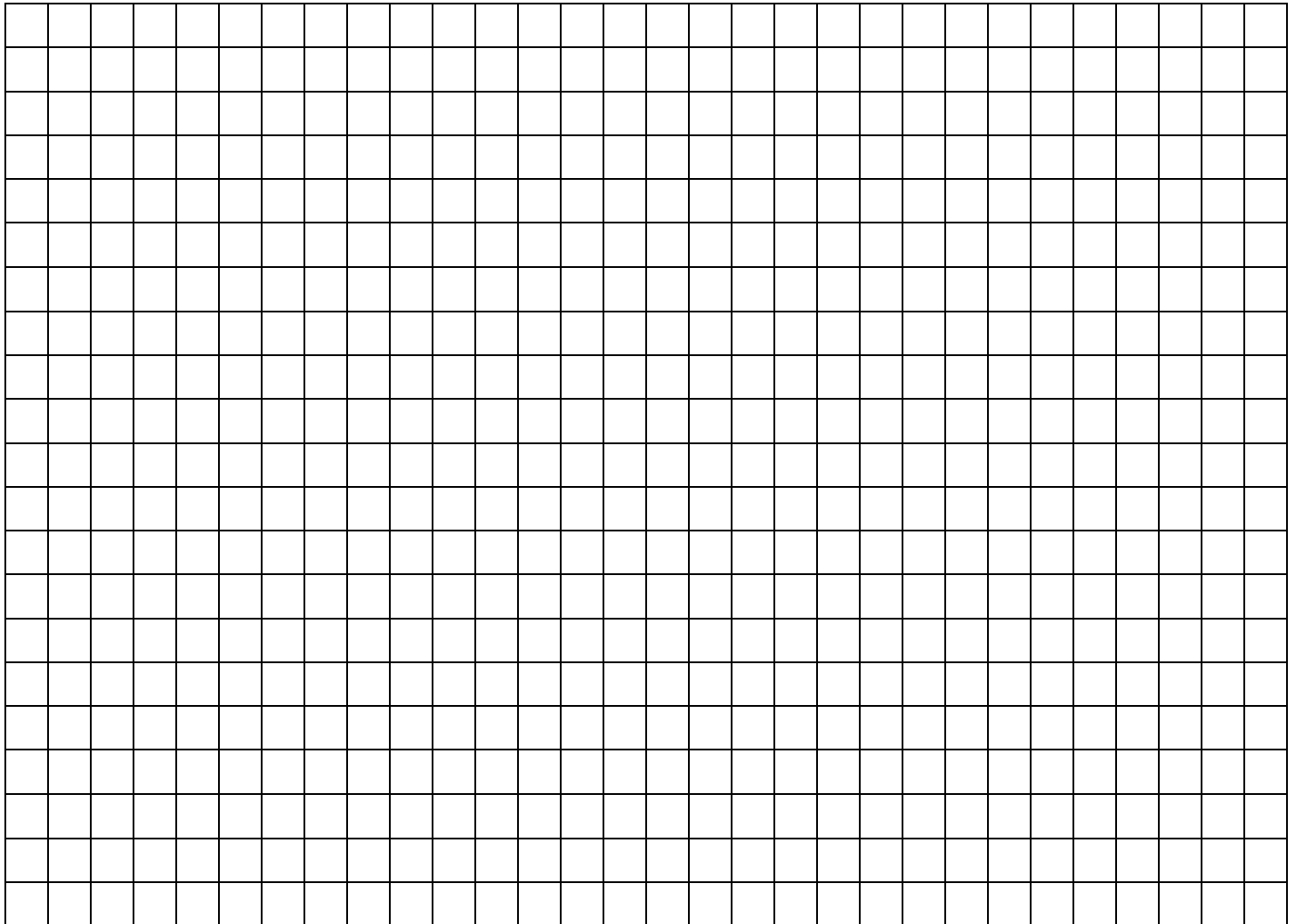
#date

5th Grade Individual Contest

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

INDIVIDUAL TEST - 35 minutes

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When you are prompted to begin, tear off the colored sheet and begin testing. Make sure your name and school are recorded on the answer sheet. The raw score will be 2 points for correct answers to problems 1-30 and 3 points for 31-40. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute time warning.



"Math is Cool" Championships - 2018-19

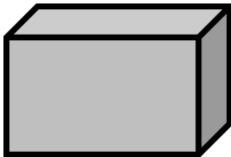
5th Grade Individual Contest

Questions 1-30: 2 points each	
1	What is the largest number in the following list? 17, 89, 88, 10, 90, 25
2	Fred has \$12.22 and Ed has \$7.08. How many dollars do Fred and Ed have together?
3	As she drives back and forth to work, Mary travels a total of 33 miles every day. How many total miles does she travel in her 5-day work week?
4	What is the quotient of 18 and 3?
5	What is the biggest counting number that can be put in the blank and the inequality will still be true? $18 - \underline{\quad} > 16$
6	A recipe calls for $1\frac{1}{4}$ cups of flour. Eho is going to quadruple the recipe. How many cups of flour will he need?
7	Four apples weigh 3 pounds. On average, how many ounces does one apple weigh?
8	Calculate: $21.002 - 1.134$
9	How many inches are in 4 yards?
10	Which number is the smallest number? A) $13/14$ B) $19/37$ C) 0.4001 D) 0.401
11	What is the positive square root of 196?
12	What is the perimeter of a rhombus with a side length of 17 cm?
13	There are six giraffes in the zoo. Each giraffe eats 13 pounds of food a day. All together, how many pounds of food do they eat in a week?
14	What is the least common multiple of 16 and 28?
15	I am petting Chuck the cat. If he rolls over after every five pets, how many times has he rolled over if I pet him 37 times?
16	Bryce claims to grow $\frac{2}{3}$ of an inch per week. How many weeks would it take him to grow 16 inches?
17	If 3 Furbees is equal to 5 Snorkflaks and 10 Snorkflaks is equal to 7 Whizbangs, how many Furbees are equal to 21 Whizbangs?

18	Ethan walks from his home to his friend's house by going 2 blocks west then 4 blocks south. Later, he walks 5 blocks east to the store. Then he takes the shortest path back home along each block, without any shortcuts through the blocks. How many blocks did he walk between leaving home and returning home?
19	I run a mile in eight minutes. As a decimal rounded to the nearest tenth, how many miles can I run in an hour?
20	Edward can rap 3 words per second. His rap performance includes 10 seconds of wordless beat-boxing after every 90 words. If Edward performs for 2 minutes, how many words did he say?
21	Biff and Eho own chickens, each of whom lays one egg every afternoon. Every Monday morning, Biff and Eho sell a chicken at the local farmer's market. If this Monday, Biff and Eho have 5 chickens after returning from their morning sale, how many eggs, in total, will Biff and Eho collect in a span of 5 weeks?
22	Hannah scored a 72, 64, 87, and 93 on her biology tests. What was Hannah's average score?
23	<p>What's the perimeter of the shape in the following figure? The figure is not to scale, but all corners are 90-degree angles.</p>
24	Christopher cuts across a pizza with three straight-line cuts. What is the greatest number of pizza pieces that he could have made with his cuts?
25	Porgs are filling up the Millennium Falcon as they make nests from the upholstery. If one Porg can make a nest in thirty minutes, how many nests can thirty Porgs make in one hour?
26	Victor's stomach holds $3\frac{1}{2}$ pounds when full. Victor buys a burrito and eats it, making his stomach 65% full. As a decimal to the nearest tenth, how many ounces did Victor's burrito weigh?
27	What is the degree measure of one internal angle of a regular octagon?
28	A Saharan silver ant runs at a speed of 0.7 meters per second. How many meters could a Saharan silver ant run, if it runs for 1.2 hours?
29	Expressed as a mixed number, what is: $2\frac{3}{4} + 4\frac{5}{6}$?
30	The degree measures of the angles in a triangle are in the ratio of 3:4:5. What is the degree measure of the largest angle?

Challenge Questions: 3 pts each

- 31 At Calculators R Us, a package of 12 calculators sells for \$96, a package of 7 calculators costs \$63, and one calculator sells for \$10. Leyi has \$225 to spend and Kaixin has \$156 to spend. If they each purchase the maximum number of calculators possible, how many more calculators can Leyi buy than Kaixin?
- 32 A palindrome is a counting number that reads the same backwards as forwards (i.e., 34243). What is the positive difference between the two smallest palindromes greater than 123456?
- 33 The volume of a cube is 729 cubic inches. In square inches, what is the surface area of the cube?
- 34 Benny has five dollars less than Amy but twice as much as Carol. Carol is ten dollars short of having twice as much as Diego, who has \$13. How much money does Amy have?
- 35 What is the ratio of the volume of cube with surface area 216 cm^2 to the volume of a cube with surface area 96 cm^2 ? Answer as a reduced ratio in the form $a:b$, where a and b are counting numbers
- 36 Terry's baseball team won 80% of its first 20 games, but only 60% of the next 30 games thereafter. What was their winning percentage overall?
- 37 How many ways are there to seat five people in a line of six chairs?
- 38 Mary plans to draw one marble at random out of a bag containing six green and four blue marbles. Jimmy adds several red marbles to the bag, and now the probability of randomly drawing a green marble is half what it was originally. How many red marbles did Jimmy add?
- 39 Two numbers are defined to be "coprime" if their only common positive factor is 1. How many counting numbers less than or equal to 60 are coprime with the number 60?
- 40 Three faces of a rectangular box have areas of: 10, 15, and 24 cm^2 . What is the volume of the box, in cubic cm?



"Math is Cool" Championships - 2018-19

#date

Total # Correct:

KEY

STUDENT NAME: _____ School Name: _____

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

5th Grade Individual Contest - Score Sheet DO NOT WRITE IN SHADED REGIONS

	Answers
1	90
2	[\$] 19.30 ("19.3" is incorrect)
3	165 [miles]
4	6
5	1
6	5 [cups]
7	12 [ounces]
8	19.868
9	144 [inches]
10	C or 0.4001
11	14
12	68 [cm]
13	546 [pounds]
14	112
15	7 [times]

	Answers
16	24 [weeks]
17	18 [Furbees]
18	18 [blocks]
19	7.5 [miles]
20	270 [words]
21	105 [eggs]
22	79
23	98 [units]
24	7 [pieces]
25	60 [nests]
26	36.4 [oz]
27	135 [degrees]
28	3024 [m]
29	$7\frac{7}{12}$
30	75 [degrees]

	Answers
31	9 [calculators]
32	1100
33	486 [sq. in.]
34	[\$] 37
35	27:8
36	68 [%]
37	720 [ways]
38	10 [red marbles]
39	16
40	60 [cu. cm]

Math is Cool" Championships - 2018-19

5th Grade - #date

Final Score:

Student Name _____

Proctor Name _____ Room # _____

First Score
(out of 20)

SCHOOL NAME _____ Team # _____

TEAM MULTIPLE CHOICE - 15 minutes - 10 problems - 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.***

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 - 2018-19

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5th Grade - #date

Team Multiple-Choice Contest

Use the following information to answer questions 1 - 3:

Type of Food	Protein content (grams)	Calories
1 hard-boiled egg	6	80
1 cup almonds	20	500
1 chicken breast	50	300
1 cup whole milk	10	150

1

Henry is trying to modify his daily diet to increase his protein consumption. He would like to eat 60 grams of protein each day. How many hard-boiled eggs does Henry need to eat in one day to meet this requirement?

- A) 1 B) 6 C) 10 D) 12 E) Answer not given

2

The protein density of a food is defined as the ratio of protein to calories in a given food. Which of the types of food has the highest protein density?

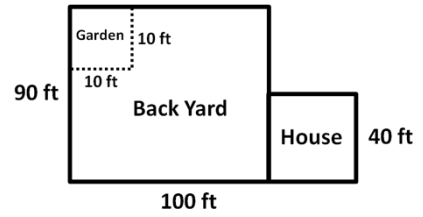
- A) Whole milk B) Chicken breast C) Almonds D) Egg E) Answer not given

3

Assume that Henry can have multiple servings of each type of food in a day. How many different combinations of foods will provide him with exactly 60 grams of protein in one day?

- A) 3 B) 5 C) 6 D) 7

	<p>Use the following information to answer questions 4 - 6.</p> <p>Mike is going to have a fence installed around the back yard of his brand new house. The fence will extend around the entire perimeter of the back yard, with the exception of where the house meets the yard. The prices for the fencing include installation, and are quoted in dollars per linear foot along the fence line. A Red Cedar fence costs \$26/foot and a Pine fence costs \$12/foot.</p>
4	<p>How much money will Mike save if he gets a Pine fence instead of a Red Cedar fence?</p> <p>A) \$4080 B) \$4760 C) \$8080 D) \$8840 E) Answer not given</p>
5	<p>When the fence is done, Mike is going to plant grass seed in the entire back yard, except for in the garden plot. Three pounds of grass seed is enough to plant 1000 square feet. Mike can buy 3 lb bags of grass seed for \$15 each, or 7 lb bags of grass seed for \$25 each. What is the least amount of money he can spend to seed the back yard?</p> <p>A) \$75 B) \$105 C) \$115 D) \$225 E) Answer not given</p>
6	<p>When the grass is done, Mike is going to plant tomatoes in his garden. He is going to allow five square feet for each plant. Half the plants will be yellow tomatoes, which will yield 7 pounds of tomatoes per plant. The other half will be red tomatoes, which will yield 12 pounds of tomatoes per plant. How many total pounds of tomatoes will Mike have?</p> <p>A) 70 B) 120 C) 140 D) 190 E) Answer not given</p>
7	<p>59.8 percent of fifth graders reported owning their own cell phone, 50.6 percent of fourth graders reported owning their own cell phone, and 39.5 percent of third graders reported owning their own cell phone. Which answer best reflects the percentage of 6th graders that would own phones if the trend continues?</p> <p>A) 28% B) 70% C) 62% D) 95%</p>
8	<p>Which of these expressions equals the smallest value?</p> <p>A) $3(2 - 7)$ B) 4^2 C) $13 + 2$ D) $51 - 37$</p>
9	<p>Z is a positive number and W is a negative number. The quantity $-Z + W$ can be described as which of the following?</p> <p>A) Positive B) Negative C) 0 D) Cannot be determined.</p>
10	<p>A circle is centered at the origin (0, 0) and has a radius of 5 units. If the circle is moved 2 units to the right and 3 units up, where is the top-most point of the circle located? Answer as an ordered pair (x, y).</p> <p>A) (-2, -8) B) (2, 3) C) (2, 8) D) (7, 3) E) Answer not given</p>



Math is Cool" Championships - 2018-19

5th Grade - #date

Final Score:

KEY

Student Name _____

Proctor Name _____ Room # _____

SCHOOL NAME _____ Team # _____

TEAM MULTIPLE CHOICE - 15 minutes - 10 problems - 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.***

DO NOT WRITE IN SHADED REGIONS

Answer	
1	C
2	B
3	D
4	B
5	E(\$100)
6	D
7	B
8	A
9	B
10	C

"Math is Cool" Championships - 2018-19

5th Grade - #date

Final Score:

First Score
(out of 10)

SCHOOL NAME _____ Team # _____

Proctor Name _____ Room # _____

Team Contest - Score Sheet

TEAM TEST - 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 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			

"Math is Cool" Championships - 2018-19

#sponsor

5th Grade - #date

Team Contest

1	If a cake requires 2 cups of flour and $\frac{1}{2}$ cup of sugar, how many cakes can I make with 2 cups of sugar and 5 cups of flour?
2	What is the sum of the positive factors of 101?
3	A triangle has vertices at points (3, 7), (4, 2), and (1, 1) in an X-Y coordinate graph. What is the area of the triangle?
4	Mr. Faix and Bob Ross are conquering the world, but first they need refreshments. They pool their money and come up with \$20.19. How many apples can they buy if each apple costs 35 cents?
5	The harmonic mean is the reciprocal of the average of the reciprocals. What is the harmonic mean of 40 and 60?
6	Three carpenters can build two tables in three days. How long will it take two carpenters to build four tables?
7	Two counting numbers, neither of which contains the digit 0, multiply to give 10000. What is their sum?
8	Kala uses rectangular strips 6 inches wide for a border around a picture that is 3 feet by 4 feet. What is the total area of the border in square feet?
9	The sum of the digits of a counting number is 20. What is the smallest possible number it could be?
10	Two numbers are chosen at random from the prime numbers less than 20. What is the probability that the sum of the numbers is a multiple of 3?

"Math is Cool" Championships - 2018-19

5th Grade - #date

Final Score:

KEY

SCHOOL NAME _____ Team # _____

Proctor Name _____ Room # _____

Team Contest - Score Sheet

TEAM TEST - 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 1 or 0. Record all answers on the colored answer sheet.

DO NOT WRITE IN SHADED REGIONS

Answer	
1	2 [cakes]
2	102
3	8 [units ²]
4	57 [apples]
5	48
6	9 [days]
7	641
8	8 [sq feet]
9	299
10	3/7

"Math is Cool" Championships -- 2018-19

5th Grade - #date

School: _____ Team # _____

Proctor: _____ Room # _____

PRACTICE RELAY

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

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5th Grade - #date

School: _____ Team # _____

Proctor: _____ Room # _____

PRACTICE RELAY

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

"Math is Cool" Championships -- 2018-19

5th Grade - #date

School: _____

Team # _____

Proctor: _____

Room # _____

RELAY #1

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

"Math is Cool" Championships -- 2018-19

5th Grade - #date

School: _____

Team # _____

Proctor: _____

Room # _____

RELAY #1

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

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School: _____ Team # _____

Proctor: _____ Room # _____

RELAY #2

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

"Math is Cool" Championships -- 2018-19

5th Grade - #date

School: _____ Team # _____

Proctor: _____ Room # _____

RELAY #2

Answer for question # 1	Answer for question # 2	Answer for question # 3	Answer for question # 4
1 or 0	1 or 0	1 or 0	2 or 0

Fill in your answer and pass back to the next person.

5th Grade	Practice Relay - Person 1
Question 1	What is the sum of 8 and 4?

5th Grade	Practice Relay - Person 1
Question 1	What is the sum of 8 and 4?

5th Grade	Practice Relay - Person 2
Question 1	What is the sum of 8 and 4?
Question 2	What is the product of TNYWG and 2?

5th Grade	Practice Relay - Person 2
Question 1	What is the sum of 8 and 4?
Question 2	What is the product of TNYWG and 2?

5th Grade	Practice Relay - Person 3
Question 2	What is the product of TNYWG and 2?
Question 3	What is the quotient of TNYWG divided by 3?

5th Grade	Practice Relay - Person 3
Question 2	What is the product of TNYWG and 2?
Question 3	What is the quotient of TNYWG divided by 3?

5th Grade	Practice Relay - Person 4
Question 3	What is the quotient of TNYWG divided by 3?
Question 4	What is the difference between 103 and TNYWG?

5th Grade	Practice Relay - Person 4
Question 3	What is the quotient of TNYWG divided by 3?
Question 4	What is the difference between 103 and TNYWG?

5th Grade	Relay #1 - Person 1
Question 1	The average weight of a bald eagle is 11 pounds. On average then, how many eagles would weigh 99 pounds?

5th Grade	Relay #1 - Person 1
Question 1	The average weight of a bald eagle is 11 pounds. On average then, how many eagles would weigh 99 pounds?

5th Grade	Relay #1 - Person 2
Question 1	The average weight of a bald eagle is 11 pounds. On average then, how many eagles would weigh 99 pounds?
Question 2	What is the sum of the numerator and denominator of the reduced fraction of $\frac{TNYWG}{18}$?

5th Grade	Relay #1 - Person 2
Question 1	The average weight of a bald eagle is 11 pounds. On average then, how many eagles would weigh 99 pounds?
Question 2	What is the sum of the numerator and denominator of the reduced fraction of $\frac{TNYWG}{18}$?

5th Grade	Relay #1 - Person 3
Question 2	What is the sum of the numerator and denominator of the reduced fraction of $\frac{TNYWG?}{18}$?
Question 3	What is the area of a rectangle with sides of length 8 and TNYWG?

5th Grade	Relay #1 - Person 3
Question 2	What is the sum of the numerator and denominator of the reduced fraction of $\frac{TNYWG?}{18}$?
Question 3	What is the area of a rectangle with sides of length 8 and TNYWG?

5th Grade	Relay #1 - Person 4
Question 3	What is the area of a rectangle with sides of length 8 and TNYWG?
Question 4	Tealah is rolling four six-sided fair dice. What is the probability she will roll a sum of TNYWG?

5th Grade	Relay #1- Person 4
Question 3	What is the area of a rectangle with sides of length 8 and TNYWG?
Question 4	Tealah is rolling four six-sided fair dice. What is the probability she will roll a sum of TNYWG?

5th Grade	Relay #2 - Person 1
Question 1	Calculate: $25 - 16$.

4th Grade	Relay #2 - Person 1
Question 1	Calculate: $25 - 16$.

5th Grade	Relay #2 - Person 2
Question 1	Calculate: $25 - 16$.
Question 2	Fran has 3 pet snakes, Sophia has 4 pet turtles, and Zella has TNWG pet tarantulas. How many total pets do Fran, Sophia, and Zella have?

5th Grade	Relay #2 - Person 2
Question 1	Calculate: $25 - 16$.
Question 2	Fran has 3 pet snakes, Sophia has 4 pet turtles, and Zella has TNWG pet tarantulas. How many total pets do Fran, Sophia, and Zella have?

5th Grade	Relay #2 - Person 3
Question 2	Fran has 3 pet snakes, Sophia has 4 pet turtles, and Zella has TNWG pet tarantulas. How many total pets do Fran, Sophia, and Zella have?
Question 3	Polly noticed that every day the number of cats she has doubles. If she had 1 cat on day 1, then on what day will she have TNYWG cats?

5th Grade	Relay #2 - Person 3
Question 2	Fran has 3 pet snakes, Sophia has 4 pet turtles, and Zella has TNWG pet tarantulas. How many total pets do Fran, Sophia, and Zella have?
Question 3	Polly noticed that every day the number of cats she has doubles. If she had 1 cat on day 1, then on what day will she have TNYWG cats?

5th Grade	Relay #2 - Person 4
Question 3	Polly noticed that every day the number of cats she has doubles. If she had 1 cat on day 1, then on what day will she have TNYWG cats?
Question 4	A path around a house is 72 yards long. How many inches will Jaxon have walked, if he walked around the path TNYWG times?

5th Grade	Relay #2 - Person 4
Question 3	Polly noticed that every day the number of cats she has doubles. If she had 1 cat on day 1, then on what day will she have TNYWG cats?
Question 4	A path around a house is 72 yards long. How many inches will Jaxon have walked, if he walked around the path TNYWG times?

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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 8 and 4?	12
Person 2	What is the product of TNYWG and 2	24
Person 3	What is the quotient of TNYWG divided by 3	8
Person 4	What is the difference between 103 and TNYWG?	95
	Relay #1	Answer
Person 1	The average weight of a bald eagle is 11 pounds. On average then, how many eagles would weigh 99 pounds?	9[eagles]
Person 2	What is the sum of the numerator and denominator of the reduced fraction of $\frac{TNYWG}{18}$	3
Person 3	What is the area of a rectangle with sides of length 8 and TNYWG?	24
Person 4	Tealah is rolling four six-sided fair dice. What is the probability she will roll a sum of TNYWG?	$\frac{1}{1296}$
	Relay #2	Answer
Person 1	Calculate: 25 - 16	9
Person 2	Fran has 3 pet snakes, Sophia has 4 pet turtles, and Zella has TNWG pet tarantulas. How many total pets do Fran, Sophia, and Zella have?	16[pets]
Person 3	Polly noticed that every day the number of cats she has doubles. If she had 1 cat on day 1, then on what day will she have TNYWG cats?	[day] 5
Person 4	A path around a house is 72 yards long. How many inches will Jaxon have walked, if he walked around the path TNYWG times?	12960[inches]

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5th Grade - #date

KEY

PRACTICE RELAY

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
12	24	8	95
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
9 [eagles]	3	24	1/1296
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
9	16 [pets]	[day] 5	12960 [inches]
1 or 0	1 or 0	1 or 0	2 or 0

"Math is Cool" Championships -- 2018-19

5th Grade

School: _____ Team # _____

Proctor: _____ Room # _____

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

Do not use tally marks.

"Math is Cool" Championships -- 2018-19

5th Grade

School: _____ Team # _____

Proctor: _____ Room # _____

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

Do not use tally marks.

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5th Grade - #date

COLLEGE BOWL- SET 1

#	Problem	Answer
1	What is the product of thirteen and eight?	104
2	How many inches are in three yards?	108 [inches]
3	For John's training, he is required to run twenty miles per week. On Monday he ran three miles and Tuesday four miles. How many more miles does he need to run for the week to meet his training requirement?	13 [miles]
4	Today is Tuesday. What day of the week will it be sixty-two days from now?	Monday
5	Tami fills her car with gas at a price of \$3.05 per gallon and she spends a total of \$26.84. To the nearest whole number, how many gallons of gas did Tami buy?	9 [gallons]
6	Amy has thirteen dimes, twenty-five quarters, and thirty-two nickels in her piggy bank. What is the value of the coins in Amy's piggy bank, in dollars?	[\$] 9.15
7	Hershey the dog and Otto the cat weigh ninety pounds together. If Otto weighs sixty pounds less than Hershey, how much does Hershey weigh?	75 [pounds]
8	A dungeon contains four rooms, labeled W, X, Y, and Z. You must enter each room exactly once to obtain the magic key in that room. You must go into room Z first, and you may not go directly from room Y to room X. In how many different ways can you visit the four rooms?	4 [ways]
9	Kai spent one seven-day week studying for a math test. On the first day, he solved two problems. On each following day, he solved twice as many problems as the day before. How many problems did Kai solve altogether in that week?	254 [problems]
10	Tim divided his favorite number by four, then he subtracted six from the result. Then he took the square root of that result, and got ten. What is Tim's favorite number?	424

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COLLEGE BOWL- SET 2

#	Problem	Answer
1	Billy eats five thousand calories a day. For breakfast, he had one thousand five hundred calories, and for lunch two thousand five hundred calories. How many calories will he need to eat for dinner to reach his daily five thousand calories?	1000 [calories]
2	How many pints are in seven gallons?	56 [pints]
3	What is the difference of eight hundred thirty-one minus seven hundred eighty-eight?	43
4	What is the volume of a right rectangular pyramid with a base width of 6 cm, a base length of 9 cm, and a height of 2 cm?	36 [cm ²]
5	How many cups are in 12 gallons and 2 quarts?	200 [cups]
6	A bag contains 9 green marbles, 5 black marbles, and 12 orange marbles. What is the probability of randomly pulling out a black marble without looking?	5/26
7	The ratio of the area of a certain square to the perimeter of that same square is 1:1. What is the side length of this square?	4 [units]
8	An old copy of the book 'The Giver' is missing several consecutive pages. The last page number before the missing pages is 16, and the first page number after the missing pages is 57. How many page numbers are missing from the book?	40 [page numbers]
9	Find the median of the following set of numbers: 23, 25, 27, 18, 19, 27	24

10	Lyla has four hundred sixty dollars in her bank account. She uses her debit card for a purchase of five hundred thirty, makes a deposit of one hundred seventy-five, and then writes a check for ninety. How many dollars does Lyla have in her bank account after these transactions are processed?	15 [dollars]
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 5th Grade - #date

COLLEGE BOWL- SET 3

#	Problem	Answer
1	Marcy does an average of three hundred minutes of homework per week. On Sunday, she did seventy minutes of homework and on Wednesday forty minutes of homework. How many more minutes of homework will she need to do the rest of the week to do her average amount of weekly homework?	190 [minutes]
2	Steve has a ribbon that is five feet and six inches long. He cuts the ribbon in half and then cuts each half into thirds. He then cuts each of those pieces in half. How long, as a common fraction in inches, is each piece of ribbon after Steve finishes cutting the ribbon?	11/2 [inches]
3	How many ounces are in five pounds?	80 [ounces]
4	What is the sum of five hundred forty-one plus seven hundred twenty-one?	1262
5	A laptop's power is at sixty-four percent. Every fourteen minutes, the power goes down by two percent. If the time now is 1:24 PM, at what time will the power be at twelve percent?	7:28 PM
6	What is the remainder when six hundred eighty-eight is divided by seven?	2
7	If today is Thursday, what day will it be in two hundred forty-seven days?	Saturday
8	A number of chairs are placed in a circle, with the chairs numbered consecutively, starting with one, two, three, ... and so on. Parker is sitting in chair number six, and he is directly across from Kayla, who is sitting in chair number thirteen. How many chairs are in the circle?	14 [chairs]

9	An older brother is ten years old, and his younger sister is half his age. When the brother is fifty years old, how old will the sister be?	45 [years old]
10	Kirby eats four green beans every day. How many green beans does he eat in the month of May?	124 [beans]

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 5th Grade - #date

COLLEGE BOWL- SET 4

#	Problem	Answer
1	Jude plays an average of nine hundred eighty minutes of Fortnite every week. On Sunday and Monday night he had homework to do and had no time to play Fortnite. On Tuesday night, he played one hundred minutes of Fortnite and Thursday night he played fifty, how many more minutes of Fortnite playing does he need to play to keep up with his weekly average?	830 [minutes]
2	How many hours are in seven hundred twenty minutes?	12 [hours]
3	Minsuh can fold three small origami cranes in one minute. How many origami cranes can she fold in twenty-nine minutes?	87 [cranes]
4	A fast-growing moss sprouts one day and then doubles in size every night, spreading out in a forest. If the forest is completely covered after the eighteenth night, how many nights did it take for the moss to cover twenty-five percent of the forest?	16 [nights]
5	What is the hundreds digit in the product of twenty-five and thirteen?	3
6	Tobias and Jacob are adding their ages, which sum to twenty-eight. Jacob is five times Tobias' age plus four. How old is Jacob?	24 [years old]
7	I woke up twelve hours and twelve minutes before noon. What time did I wake up? Answer using a.m. or p.m.	11:48 PM

8	Packard can hit baseballs at a rate of nine balls per minute. How many baseballs can he hit in eight minutes?	72 [baseballs]
9	Rover the dog sleeps for eighteen hours per day. What percentage of the day does Rover sleep?	75 [percent]
10	Find the next number in the sequence that begins three, four, six, ten, eighteen.	34

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5th Grade - #date

COLLEGE BOWL- SET 5

#	Problem	Answer
1	What is the remainder of the quotient of two hundred seventy-four divided by thirteen?	1
2	Greta practices ballet an average of one thousand two hundred minutes per week. On Monday and Tuesday night she practiced an average of one hundred eighty minutes each night. How many more minutes does she need to practice to reach her weekly average?	840 [minutes]
3	How many weeks are in eighty-four days?	12 [weeks]
4	Austen randomly picks a counting number from one to ten, inclusive. As a common fraction, what is the probability that he chooses an integer that is neither prime nor composite?	1/10
5	Mike's car holds five passengers (plus himself) and thirty-three people need a car ride to the big game. What is the least number of trips that Mike will need to make to get everyone to the game?	7 [trips]
6	What will be your change if you pay nine dollars and seventy-nine cents for a T-shirt using a twenty dollar bill?	[\$] 10.21
7	The elevation of the highest point in Asia, Mt. Everest, is twenty-nine thousand thirty-five feet above sea level. The lowest elevation at the Dead Sea is one thousand three hundred forty-eight feet below sea level. What is the difference in the elevations of the two locations, in feet?	30383 [feet]

8	A student does a calculation and gets an answer of twenty. On her last step, she had multiplied by two when she should have divided by two. What is the correct answer?	5
9	A rectangle has a width of five feet and a length of three x plus two feet. The area of the rectangle is eighty-five square feet. Find x .	$[x =] 5$
10	There are five cars for every three trucks parked in a lot. If there are a total of one hundred twenty cars and trucks parked in the lot, how many cars are there?	75 [cars]

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COLLEGE BOWL- SET 6

#	Problem	Answer
1	It takes fifty sticks of wood to keep a small house warm for a week in the winter time. The house needs to be heated for twenty-four weeks. If the house has already been heated for ten weeks, how many more sticks of wood are needed to heat the house for the rest of the winter?	700 [sticks of wood]
2	How many decades are in two centuries?	20 [decades]
3	What is the thousands digit of the sum of eight thousand three hundred twenty-one plus twelve thousand five hundred seventy-eight?	0
4	Fourteen Misps are equal to nine Wisps. Three Wisps are equal to two Hisps. How many Misps are equal to six Hisps?	14 [Misps]
5	What is the probability of drawing a spade from a standard deck of cards, and then rolling an odd number on a regular six-sided die?	1/8
6	Mrs. Moursund can make one diagram in ten seconds. Mr. Joyce can make one diagram in twenty-five seconds. How many seconds would they take to make seven diagrams total, working together?	50 [seconds]
7	Biff, Marty, and Eho play a math game that only one of them will win. If Biff has a one third chance of winning and Eho has a two fifths chance of winning, what is the probability that Marty wins?	4/15

8	Gabi sorts her pencils into groups. When she sorts them into groups of three, she has two left over. When she sorts them into groups of five, she still has two left over. What is the least number of pencils that Gabi could have?	17 [pencils]
9	I am thinking of a prime number, where the product the number's digits equals fifteen. If the number has two digits, what number am I thinking of?	53
10	If x equals two times y , and y equals three times the square root of sixteen, what is the value of x ?	24

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COLLEGE BOWL- EXTRA

#	Problem	Answer
1	How many two-digit numbers have a tens digit that is greater than the ones digit?	45 [numbers]
2	Name all the distinct prime factors of one hundred twenty-eight?	2
3	A pool is twelve feet deep and rectangular. It has a volume five thousand four hundred cubic feet. It is twice as long as it is wide. How many feet long is the pool?	30 [feet]
4	Muze the music addict makes playlists with exactly forty-nine songs. If he has forty-nine playlists how many songs does he have?	2401 [songs]
5	The area of a square is four hundred forty-one square inches. What is the length, in inches, of each side?	21 [inches]
6	What is the circumference, in miles, of a really big circle that has a diameter of seventeen miles?	17π [miles]