"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

Sponsored by:

GENERAL INSTRUCTIONS applying to all tests:

- *Good sportsmanship is expected throughout the competition by <u>all</u> involved (competitors and observers). Display of poor sportsmanship will result in disqualification.*
- *Competitors may not use calculators or any other aids on any portion of this contest.*
- *Unless stated otherwise:*
  - *All answers are integers, and any non-integer answers will be "coded" as integers.*
  - *For 5th grade and up, all fractions and ratios must be reduced to simplest form, all radicals must be simplified, and all denominators must be rationalized.*
  - *Do not round or approximate answers. Leave answers in terms of π or other irrational quantities (e.g., √2), where applicable.*
- *Units are not necessary as part of your answer, However, if you choose to use units, they must be correct.*
- *Record all answers on the colored cover sheets in the answer column only.*
- ***Be sure that the student name, school, team number, etc. has been filled out at the top of each answer 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 be scored as a 0.*

FINAL SCORES AND AWARDS

Individual awards are determined by both the Mental Math and Individual Test scores. Individual ties are broken based on the following, in this order: total scaled individual points, total number of correct answers on the Individual Test, Mental Math raw score, number of correct answers from Individual Test #31-40, number of correct answers from Individual Test #16-30, highest numbered question answered correctly on the Individual Test working backwards from #40.

Team (School) awards are based on the highest score from amongst each of the school's "teams of 4 students" in each event and is calculated as 2·(Sum of highest 3 Mental Math scores) + 2·(Multiple Choice) + 6·(Team) + 1·(Triple Jump) + 1·(College Bowl), for approximate weights of 25%, 20%, 30%, 15% and 10% respectively. Team ties are broken based on highest event score in order of the events, starting with Mental Math.

MENTAL MATH TEST - 30 sec./quest., 8 problems, ~8%/25% of individ./team scores

The proctor will read each question twice. You may not do any writing or talking while arriving at a solution. Record only your answer on your answer sheet. You may not change, cross out, erase, or write over an answer once you have written it down. The maximum wait time is 30 seconds after completion of the second reading of the question. Correct answers receive 1 point.

INDIVIDUAL TEST - 35 minutes, 40 problems, ~92% of individual score

When you are prompted to begin, tear off the colored answer sheet and begin testing. No talking during this individual test. You will be given a 5 minute time warning. Correct answers receive 2 points for problems 1-30 and 3 points for 31-40 (in the scaled score).

"Math Is Cool" Championships — 2024-25
5th Grade — Feb/March 2025

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2024-25

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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.

5th Grade

	Answer	
1	40	What is three hundred and forty-five minus three hundred and five?
2	23	What is the largest positive integer factor of twenty-four minus the smallest positive integer factor of twenty-four?
3	4 [sq. meters]	What is the area in square meters of a triangle with a height of two meters and a base of four meters?
4	225 [cents]	If Sasha has fifteen dimes and Olivia has three quarters, how many cents do they have in total?
5	24 [= x]	x minus fourteen equals ten. What is x?
6	2	The first six Fibonacci numbers are zero, one, one, two, three, and five. What is the average of the first six Fibonacci numbers?
7	7	The product of two numbers is one hundred and twelve, and four times the first number is sixty-four. What is the second number?
8	5 [hours]	If one machine can make one hundred pencils every thirty minutes, how many hours will it take two machines to make two thousand pencils?

"Math Is Cool" Championships — 2024-25

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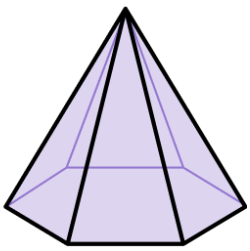
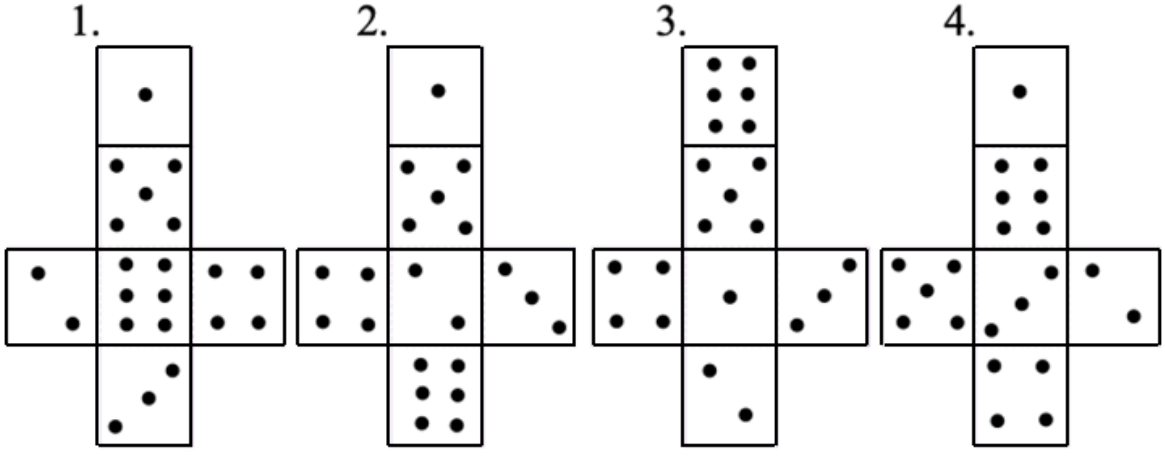
Individual Contest

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 digit is in the hundreds place of 145,679?
2	What is the perimeter in inches of a regular hexagon with side length 2 inches?
3	What is 373 multiplied by 11?
4	Caleb has 3 oranges for every 7 apples that he has. How many apples does Caleb have if he has 15 oranges?
5	If $7x + 27 = 104$, what is the value of x?
6	Amiyaa's dog eats 3 pages of her homework per day. How many pages of homework does Amiyaa's dog eat in 11 days?
7	Siri wants to buy candy bars that cost 89 cents each. How many whole candy bars can she buy with 6 dollars?
8	How many lines of symmetry does a regular pentagon have?
9	Evaluate: $8(3.875 - 2.750)$
10	Larry the snail can crawl 1 yard per hour. How many inches can he crawl in 1 hour and 30 minutes?
11	What is the number of vertices plus the number of faces plus the number of edges on a hexagonal pyramid? 
12	The Math Team is fundraising by selling boxes containing 5 donuts each. However, they can only buy the donuts in dozens. If the Math Team bought 7 dozen donuts, how many donuts will be left over after they have repacked the donuts into boxes of 5?
13	What is the next term in the following sequence? $\frac{1}{3}$, 1, 3, 9, …

Continued on next page.

14	What is the largest integer x that satisfies the following inequality? $15 - x > 3$
15	Express the following fraction as an integer: $\frac{16 \times 8 \times 10}{4 \times 4 \times 5}$
16	Nikko's favorite number is the largest prime factor of 35. What is Nikko's favorite number?
17	What is the range of the following set of numbers? {39, 56, 27, 13, 5, 98, 107, 79}
18	An isosceles triangle has 2 sides of length of 8 centimeters. What is the greatest possible integer length in centimeters of the 3rd side?
19	Cameron has a magic tree that doubles in height every day. On day 1 the tree is 1 meter, on day 2 the tree is 2 meters, on day 3 it is 4 meters, and so on. What is the first day that the tree will be over 200 meters tall?
20	The probability of rolling an odd prime number when a standard 6-sided die is rolled exactly 1 time can be expressed as a reduced common fraction A/B. What is A + B?
21	What is the sum of the first 10 positive even integers minus the sum of the first 9 positive odd integers?
22	How many ways are there to rearrange the letters in the word TOTO?
23	What is one-half of two-thirds of 180?
24	How many positive integer factors does 350 have?
25	If 4 Wackadoodles are equal to 9 Flemmings and 3 Flemmings are equal to 5 Guacks, how many Wackadoodles are equal to 30 Guacks?
26	If A#B = AB - (A + B) then what is the value of 3#(5#2)?
27	MacGuire draws a card from a standard 52 card deck. He flips it over and sees that it is an Ace of Spades. Without replacing the card, he then draws another card. The probability that he draws another ace, or another spade can be expressed as the reduced common fraction A/B. What is A + B?
28	Opposite sides of a standard die always sum to 7. Which of the following unfolded cubes (called nets), can be folded into a standard die? Answer with the corresponding integer (1, 2, 3 or 4) that labels the net. 1. 2. 3. 4. 

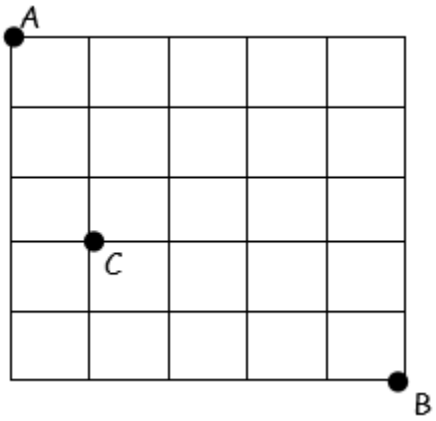
Continued on next page.

29	Mason and Issac are on different trains that are headed towards each other on a straight line. Mason's train is traveling at 70 miles per hour, and Issac's train is traveling at 50 miles per hour. If the trains are currently 300 miles apart, in how many minutes will the trains be 0 miles apart?
30	In the school kickball tournament, the Grant Elementary School Math Team averaged 4 points per game after the first 7 games. If the Math Team averaged 5 points per game after the 8^{th} game, how many points did the Math Team score in the 8^{th} game?

Challenge Questions: 3 points each

31	Austin is buying 5 tacos. For each taco, he must choose exactly one filling: beef, chicken, or vegetable. How many different combinations of the 5 tacos are possible if Austin wants exactly 2 chicken tacos?
32	In the addition problem shown, let A, B, and C each represent distinct single-digit positive integers. What is the value of A + B + C? A A A + B B A C 5
33	On a backpacking trip, while Xiaoyong is moving, he hikes at an average rate of 2.5 miles per hour. During one 10-mile hike, he takes four 30-minute breaks. With the breaks added to his total time, how many minutes on average does it take him to hike one mile during the trip?
34	Brad, Chad, and Sophie start a robot-making business. Brad can make 2 robots per hour, Chad can make 7 robots in 3 hours and Sophie can make 10 robots in 4 hours. Working together, how many robots can they make in 6 hours?
35	The following fifteen integers are distributed to three friends, each getting five: 1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 5 After selecting their numbers, the friends make the following statements: Alice: The product of my five numbers is not divisible by 9 or 10. Benny: The product of my five numbers is not divisible by 5 or 6. Carli: The product of my five numbers is not divisible by 3 or 4. What is the sum of Carli's five numbers?
36	Jack has 3 coupons that he wants to use to buy his new graphing calculator, which costs $100. He has a $10 off coupon, a 35% off coupon and 20% off coupon. If he uses each coupon exactly once, what is the lowest price in dollars that Jack can pay for the calculator?

Continued on next page.

37	March 14th is known as "Pi Day" to mathematicians as the date 3/14 represents the first 3 digits of the irrational number π. Pi day in 2025 falls on a Friday. On what day of the week will Pi day fall in 2030? Your answer must be an integer from 1 through 7, according to the following key: 1 = Sunday 2 = Monday 3 = Tuesday 4 = Wednesday 5 = Thursday 6 = Friday 7 = Saturday
38	Luke is riding his bike from his house, located at point A, to his friend Mark's house, located at point B. On his way, he stops at the convenience store located at point C. Luke rides his bike along the grid lines, moving only to the right or down. How many different routes can Luke take on his trip to Mark's house? 
39	What is the units digit of 7^{10}?
40	A regular octagon has multiple diagonals of varying lengths. What percent of the total diagonals have the longest possible length?

"Math Is Cool" Championships — 2024-25

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	6
2	12 [inches]
3	4103
4	35 [apples]
5	11
6	33 [pages]
7	6 [candy bars]
8	5
9	9
10	54 [inches]
11	26
12	4 [donuts]
13	27
14	11 [= x]
15	16

	Answer
16	7
17	102
18	15
19	9 [day]
20	4 [= A + B]
21	29
22	6
23	60
24	12 [factors]
25	8 [Wackadoodles]
26	3
27	22
28	3
29	150 [minutes]
30	12 [points]

	Answer
31	4 [combinations]
32	[A + B + C =] 10
33	36 [minutes]
34	41 [robots]
35	10
36	42 [dollars]
37	5
38	60 [routes]
39	9
40	20 [%]

5th Grade —
Feb/March 2025

"Math Is Cool" Championships — 2024-25

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:			

5th Grade — Feb/March 2025

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

"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

Team Multiple Choice Contest

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #1 THROUGH #4.

The following table shows the results of soccer games that were played between four teams, the Ants, the Bison, the Cougars, and the Ducks. Each team played every other team exactly one time. "Goals For" means how many total goals that team scored in their games. "Goals Against" means how many total goals were scored against that team in their games.

	Games Won	Games Lost	Games Tied	Goals For	Goals Against
Ants	3	0	0	7	0
Bison	1	1	1	1	1
Cougars	0	1	2	3	8
Ducks	0	2	1	3	5

1 How many total goals were scored against the Ducks?

A) 1 B) 2 C) 3 D) 5 E) Answer not given.

2 How many total games were played?

A) 6 B) 8 C) 10 D) 12 E) Answer not given.

3 How many of the games ended in a tie?

A) 1 B) 2 C) 3 D) 4 E) Answer not given.

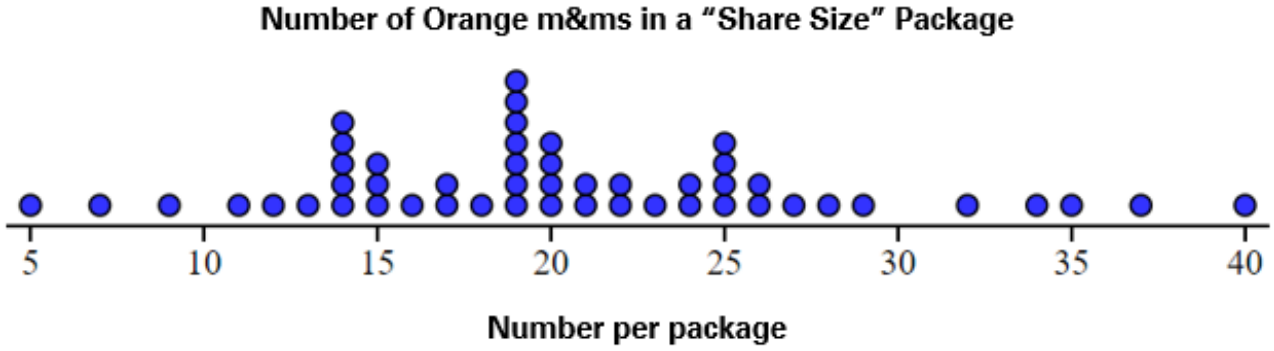
4 What was the final score of the Cougars versus the Ducks game?

A) Cougars 0, Ducks 0 B) Cougars 2, Ducks 5
C) Cougars 8, Ducks 5 D) Cougars 3, Ducks 3
E) Answer not given.

Continued on Next Page

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #5 THROUGH #8.

The dot plot shown here shows the number of orange m&ms that were in a "Share Size" package of plain m&ms. Fifty packages were counted, so there are 50 dots, one for each package.



5 None of the packages contained which of the following number of orange m&ms?

A) 11 B) 12 C) 29 D) 30 E) Answer not given.

6 What is the median of the data, in number of orange m&ms?

A) 19 B) 19.5 C) 20 D) 20.5 E) Answer not given.

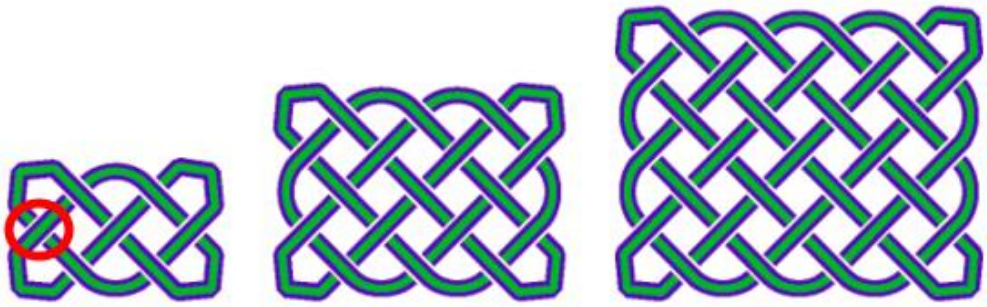
7 A typical "Share Size" package of m&ms contains about a total of 105 m&ms of various colors. According to the data in the dot plot, which of the following is the closest estimate to the percentage of orange m&ms in a "Share Size" package?

A) 10 % B) 20 % C) 25 % D) 30 % E) 35 %

8 Out of the 50 packages of m&ms that are shown in the graph, if one package is randomly selected, what is the probability that it contains at least 25 orange m&ms?

A) 8 % B) 4/25 C) 25 % D) 28 % E) Answer not given.

Continued on Next Page

	USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #9 THROUGH #10. The following figure shows the first three iterations of a Celtic knot pattern. Iteration #1 contains 7 crossings, where a 'crossing' is indicated by the circle, when one segment of the pattern crosses another.  1 2 3
9	How many crossings does Iteration 3 contain? A) 23 B) 24 C) 25 D) 27 E) Answer not given.
10	If the pattern illustrated here continues, how many crossings will Iteration #10 contain? A) 153 B) 156 C) 194 D) 221 E) 241

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Key

Team Multiple Choice Contest – Answer Key

5th 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	A
3	B
4	D
5	D
6	B
7	B
8	D
9	E (31)
10	E

"Math Is Cool" Championships — 2024-25
5th Grade — Feb/March 2025

Final Score *(out of 20)*

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

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

You will have 15 minutes to answer 10 multiple choice questions as a team. 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

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

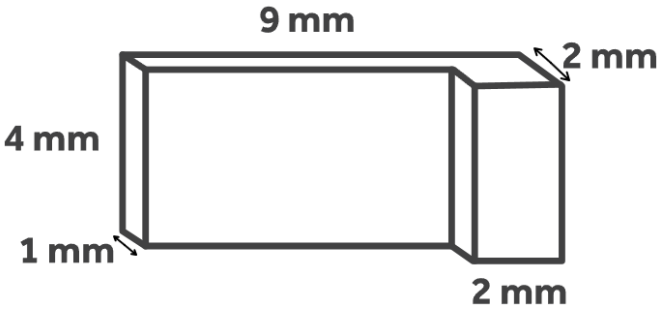
"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

Team Contest

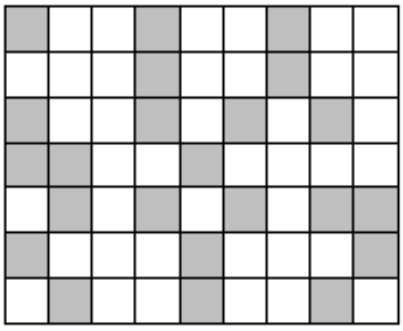
1 Omar bought three pens that each cost the same amount. The total cost was $7.26. What was the price of each pen, in cents?

2 In cubic millimeters, what is the volume of the solid shown here? All lines are straight, and all corners are right angles.



3 What is the product of all of the positive integer factors of 15?

4 The grid shown here is made up of congruent squares. How many more of the squares need to be shaded in order for 3/7 of the entire figure to be shaded?



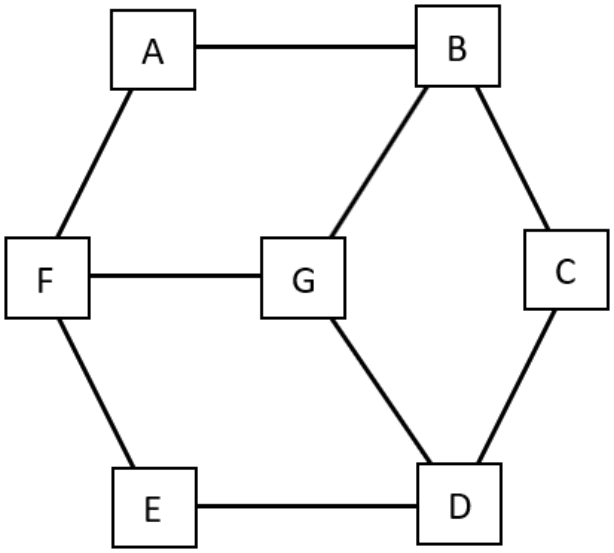
5 According to Maya's pay stub, how much money in dollars did she receive for the pay period after all taxes were deducted?

Employee Name: Maya Rodriguez	Pre-Tax Income:		$2000
	Federal Income Tax: State Income Tax: Other Taxes:	$100 $80 $40	
Pay Period: March 1 – March 15, 2025	Total Income After Taxes		?

6 Sol is running a 10 kilometer race. The distance that he has currently covered is $\frac{1}{4}$ of the distance that he has remaining. How many kilometers has Sol run so far?

7 A game is played with black and white stones. At the start of the game, the number of black stones is 5 more than 3 times the number of white stones. Each round, 7 white stones and 15 black stones are removed. After several rounds are played, there are 3 white and 56 black stones remaining. How many black stones were there are the beginning of the game?

Continued on next page.

8	What is the largest possible number in a data set with 5 distinct positive integers and a mean of 14?
9	A 10-sided die has sides numbered 0 through 9. Assume that two of the fair 10-sided dice are thrown. What is the probability in percent that the sum of the numbers showing on the two dice is less than 10, given that the first die is showing a 7? 
10	Each of the letters A, B, C, D, E, F and G in the figure shown will be replaced with a different value from the set {2, 3, 4, 5, 6, 7, 8}. If the sums of the four numbers at the vertices of quadrilaterals ABGF, BCDG, and DEFG are each 18, what is the sum of all numbers that can replace G? 

"Math Is Cool" Championships — 2024-25

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Key

Team Contest – Answer Key

5th Grade

	Answer
1	242 [¢]
2	44 [mm^3]
3	225
4	4 [squares]
5	1780 ($)
6	2 [km]
7	161 [black stones]
8	60
9	30 [%]
10	10

"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

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.

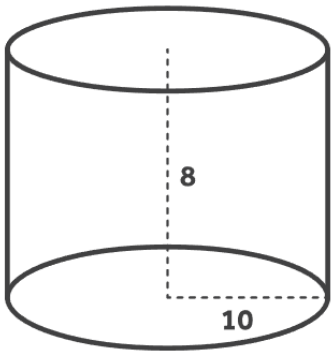
STUDENTS: DO NOT WRITE IN SHADED REGIONS

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

"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

Linda Moore Triple Jump

1	Round 9.627 to the nearest whole number.
2	Hunter can make 7 cupcakes with one cup of flour. How many cupcakes can he make with 9 cups of flour?
3	The cylinder has a radius of 10 units and a height of 8 units. What is the volume of the cylinder in cubic units? Assume a value of 3.14 for π. 
4	What is the mean of the following data set? 11, 0, 24, 33, 0, 28
5	What is the next number in this sequence? 1, 1, 3, 7, 13, 21, 31, …
6	What number replaces the question mark in the third equation? ♣ + ♣ + ♣ + ♥ + ♥ + ♥ + ♥ + ♥ = ♥ + 2918 ♣ + ♣ + ♣ = 294 ♣ + ♥ + ♥ = ?
7	What is the greatest common factor of 210, 350 and 546?
8	Kayal had 60 pet mice divided between 3 cages. Six mice escaped from the first cage, 8 mice escaped from the second cage, and 4 mice escaped from the third cage. Now there are the same number of mice in each cage. How many mice were in the third cage to start with?
9	Levi and his classmates painted a colorful stripe down the 5th grade hallway at Cottonwood Elementary School. 1/10 of the length of the stripe is red, 1/20 is orange, 1/30 is yellow, 1/40 is green, 1/50 is blue, 1/60 is indigo, and the rest is violet. The length of the violet portion of the stripe is 12.08 meters. In meters, what is the length of the entire stripe?
10	Let N = 1234567891011…998999 be the natural number formed by writing the integers 1, 2, 3, 4, …, 999 in order. The left-most digit is '1', the second digit from the left is '2', and so on. What is the 2025th digit from the left?

"Math Is Cool" Championships — 2024-25

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Key

Linda Moore Triple Jump – Answer Key

5th Grade

	Answer
1	10
2	63 [cupcakes]
3	2512 [cubic units]
4	16 [= mean]
5	43
6	1410
7	14 [= gcf]
8	18 [mice]
9	16 [m]
10	1

"Math Is Cool" Championships — 2024-25
5th Grade — Feb/March 2025

Final Score *(out of 10)*

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

Linda Moore Triple Jump – 15 minutes – ~15% of team score

When you are prompted to begin, tear off the three colored answer sheets and give a copy of the test to each of your team members and begin testing. Record all answers on this colored answer sheet. This Submittal #1 will be collected after 5 minutes.

SUBMITTAL #1

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2024-25
5th Grade — Feb/March 2025

Final Score *(out of 10)*

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

Linda Moore Triple Jump – 15 minutes – ~15% of team score

This Submittal #2 will be collected after 10 minutes.

SUBMITTAL #2

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2024-25
5th Grade — Feb/March 2025

Final Score *(out of 10)*

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

Linda Moore Triple Jump – 15 minutes – ~15% of team score

This Submittal #3 will be collected after 15 minutes.

SUBMITTAL #3

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			
5th Grade	**TOTAL:**		

"Math Is Cool" Championships — 2024-25

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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.

"Math Is Cool" Championships — 2024-25

5th Grade — Feb/March 2025

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 three hundred and forty-five minus three hundred and five?	
2	What is the largest positive integer factor of twenty-four minus the smallest positive integer factor of twenty-four?	
3	What is the area in square meters of a triangle with a height of two meters and a base of four meters?	
4	If Sasha has fifteen dimes and Olivia has three quarters, how many cents do they have in total?	
5	x minus fourteen equals ten. What is x?	
6	The first six Fibonacci numbers are zero, one, one, two, three, and five. What is the average of the first six Fibonacci numbers?	
7	The product of two numbers is one hundred and twelve, and four times the first number is sixty-four. What is the second number?	
8	If one machine can make one hundred pencils every thirty minutes, how many hours will it take two machines to make two thousand pencils?	

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Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	How many seconds are in fifteen minutes?	900 [seconds]
2	A rectangular sidewalk covers four hundred fifty square meters. It is ninety meters long. In meters, what is the perimeter?	190 [m]
3	What is the sum of all of the one-digit prime numbers?	17
4	In Ricardo's math class, twelve students play the guitar, seven students play the bass, four students play the drums, and two students play keyboards. If one student is randomly selected, what is the probability in percent that they play bass or drums?	44 [%]
5	Keira is fifty-four years old and her father is eighty years old. How old was Keira's father in years when he was three times older than Keira?	39 [years]
6	What is the range of the following set of numbers? Five, eight, thirteen, eight, twenty-five, twelve, four	21 [= range]
7	A car is traveling at eighty kilometers per hour. Rounded to the nearest whole number, how many meters will the car travel in one minute?	1333 [m]
8	What is the next number in the following sequence? Five, nine, ten, fourteen, fifteen, nineteen, and so on.	20
9	How many chocolates are in one large box containing sixteen small boxes with twenty-five chocolates each?	400 [chocolates]
10	A circular swimming pool has a diameter of twenty meters. Assuming that pi equals three point one four, what is the area of the pool in square meters, to the nearest whole number?	314 [sq meters]

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Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	Finley caught seven fireflies, Rhythm caught nine, and Yuching caught six. They put some of the fireflies in a jar. The jar had ten fireflies. How many fireflies were not put in the jar?	12 [fireflies]
2	How many right angles added together make one thousand three hundred fifty degrees?	15 [right angles]
3	If 'a' plus 'a' equals twelve, what is the value of three 'a' minus four?	14
4	Beckett has four pennies, one nickel, three quarters and two dimes. If he selects one coin randomly, what is the probability in percent that it is worth more than five cents?	50 [%]
5	Three distinct whole numbers less than ten will produce the same result whether they are all added or all multiplied. What is the largest of the three numbers?	3
6	If the median of the following set of whole numbers equals eleven, what is the smallest possible value of x? Ten, seventeen, x, ten, eleven	11 [=x]
7	The ratio of red marbles to blue marbles in a box is three to four. How many total marbles are there, if there are eighteen red marbles	42 [marbles]
8	What number comes next in the following sequence? One hundred twenty-one, two hundred thirty-two, three hundred forty-three, and so on.	454
9	Thirty is what percent of three?	1000 [%]
10	A rectangle measuring twelve centimeters by eighty-four centimeters is divided into seven equal squares. What is the perimeter of one square, in centimeters?	48 [cm]

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Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	What is a five-digit whole number with a seven in the ten-thousands place, a three in the hundreds place, and zeros in all other places?	70,300 [Seventy thousand three hundred]
2	In centimeters, what is the perimeter of a parallelogram with one side length of five centimeters and one side length of six point five centimeters.	23 [cm]
3	What number goes in the blank of the following sequence? Two hundred seven, one hundred eight-four, one hundred sixty-one, blank, one hundred fifteen, and so on.	138
4	Erin and her family went to Hawaii over winter break. They traveled there on December twenty-sixth and traveled home on January fifth. How many full days were they in Hawaii, not counting their travel days?	9 [days]
5	A number, when divided by twelve, has a quotient of eleven and a remainder of five. What is the number?	137
6	A game spinner is divided into five equal sections, numbered four through eight. On one spin, what is the probability in percent of landing on a number less than seven?	60 [%]
7	The numbers three, four, six and x have a mean of four. What is the value of x?	3 [= x]
8	Anders reads twenty pages per day. In April, how many three hundred page books can he read in full?	2 [books]
9	How many combined sides do two quadrilaterals, three octagons and one decagon have?	42 [sides]
10	A car can travel three hundred miles on six gallons of gas. How many miles can it travel on one point five gallons of gas?	75 [miles]

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Key

COLLEGE BOWL ROUND #4

#	Problem	Answer
1	Twenty-five students took a math test, and twenty of them passed the test. What percentage of students failed the test?	20 [%]
2	The surface area of a cube is six hundred square yards. What is the volume of the cube, in cubic yards?	1000 [cubic yards]
3	The rule of a sequence is to divide by two every time. The first two numbers are one hundred forty-four and seventy-two. What is the smallest number in the sequence that is a whole number?	9
4	What three-digit whole number is described by the following clues? The hundreds place digit is twice the ones place digit. The ones place digit is the smallest prime number. The tens place digit is four more than the ones place digit.	462
5	What is the least common multiple of five, nine, and ten?	90 [= LCM]
6	How many pints are in twenty quarts?	40 [pints]
7	Kat writes the first twenty odd counting numbers. How many times does she write the digit three?	9 [times]
8	A house has four rooms. Each room has four lamps, two chairs and eight cats in it. What is the total number of lamps in the house?	16 [lamps]
9	As a whole number of inches, what is the perimeter of a rectangle with a length of twelve point three inches and a width of three point seven inches?	32 [inches]
10	When a six-sided die is rolled one time, what is the probability as a percent that an even number is rolled?	50 [%]

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Key

COLLEGE BOWL ROUND #5

#	Problem	Answer
1	Rishi stacks one Lego tower, which is two hundred eighty nine centimeters tall, on top of another Lego tower, which is one thousand four hundred fifty six centimeters tall. What is the total height in centimeters of the new tower?	1745 [cm]
2	What is three times two-sevenths times fourteen?	12
3	How many millimeters are in one hundred twenty point five centimeters?	1205 [mm]
4	Sasha is standing in a row of students. She is the twenty-ninth person from the left, and the thirtieth person from the right. How many students are in the row?	58 [students]
5	What is the greatest common factor of seven, thirty-five, and forty-nine?	7 [= GCF]
6	Emil is four years older than Varun, and their combined age is forty-two years. How many years old is Emil?	23 [years old]
7	Rafael takes a twelve by eight inch rectangle and folds it in half vertically, then horizontally. In square inches, what is the area of the new smaller rectangle?	24 [sq in]
8	A jug can hold five times the amount of water than a glass can hold. If the jug holds three liters of water, how many milliliters of water will the glass hold?	600 [ml]
9	Georgia sells clay pots at an arts festival. On Friday she made three hundred fifty dollars, on Saturday she made two hundred dollars, and on Sunday she made one hundred twenty-five dollars. In dollars, what was her mean earnings per day?	225 [$]
10	What is five raised to the power of zero?	1

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Key

COLLEGE BOWL ROUND #6

#	Problem	Answer
1	Oliver earns five hundred dollars a week delivering produce boxes. Assuming he works every week, how many dollars does he earn in one year?	26,000 [$]
2	A test consists of twenty questions. If Peyton got seventy percent of them correct, what number of questions did he get wrong?	6 [questions]
3	What is the next number in the following sequence? Two, three, one, four, zero, five, and so on	-1
4	A cube with side length three inches has another cube of side length one inch glued to the middle of its top face. What is the surface area of the new figure, in square inches?	58 [sq in]
5	The letters used in the word quadrangle, spelled Q-U-A-D-R-A-N-G-L-E are placed in a bag. If one letter is randomly selected, what is the probability in percent that it is **not** a vowel?	60 [%]
6	What percentage of the integers from eleven through twenty, including eleven and twenty, are prime?	40 [%]
7	How many unit cubes are needed to create a larger cube that has an edge length of six units?	216 [unit cubes]
8	How many times does the digit zero appear in the whole number one billion two hundred million?	8 [zeros]
9	What is the value of the fifteenth positive odd integer?	29
10	Solomon has sixty-four red m&ms, ninety-five blue m&ms, and thirty-five green m&ms. How many m&ms does he have that are not red?	130 [not red m&ms]