"Math Is Cool" Masters — 2024-25

5th grade — May 17, 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" Masters — 2024-25
5th grade — May 17, 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" Masters — 2024-25

5th grade — May 17, 2025

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

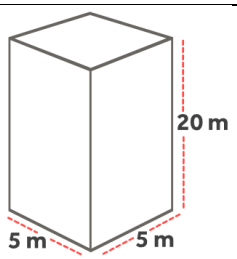
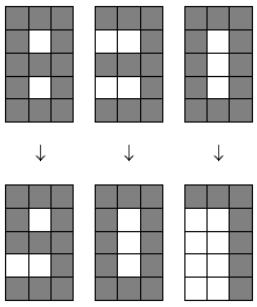
	Answer	
1	12 [sq inches]	In square inches, what is the area of a right triangle with leg lengths three and eight inches?
2	9	Two integers have a sum of fourteen and a product of forty-five. What is the larger of the two integers?
3	27 [yards]	How many yards are in eighty-one feet?
4	8 [is not a factor]	Which of the following numbers is not a factor of thirty-six? Three, twelve, one, eight, two, eighteen, six
5	5 [= median]	What is the median of the following data set? Five, nine, six, four, five
6	9	What number tripled is half of 54?
7	26 [green marbles]	Macy has two yellow, two red and two green marbles. One red marble is worth three yellow marbles. One yellow marble is worth three green marbles. Macy converts all of her marbles to green marbles. How many green marbles does she have?
8	18 [integers]	Using only the digits one, two or three, how many odd three-digit positive integers can be made assuming that digits can be used more than once?

"Math Is Cool" Masters — 2024-25

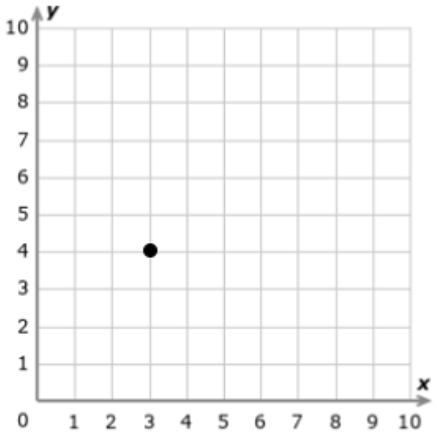
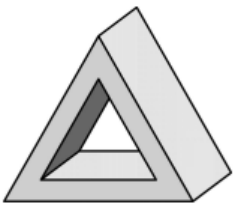
5th grade — May 17, 2025

Individual Contest

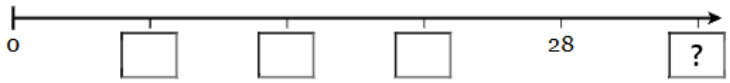
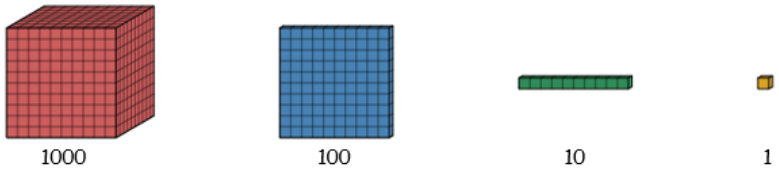
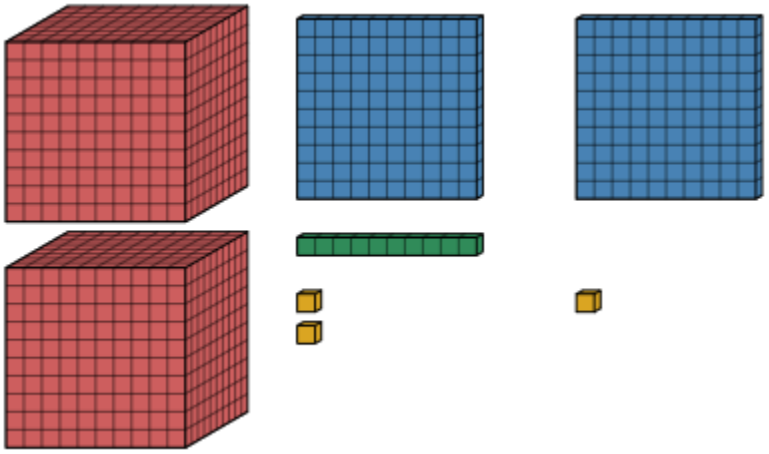
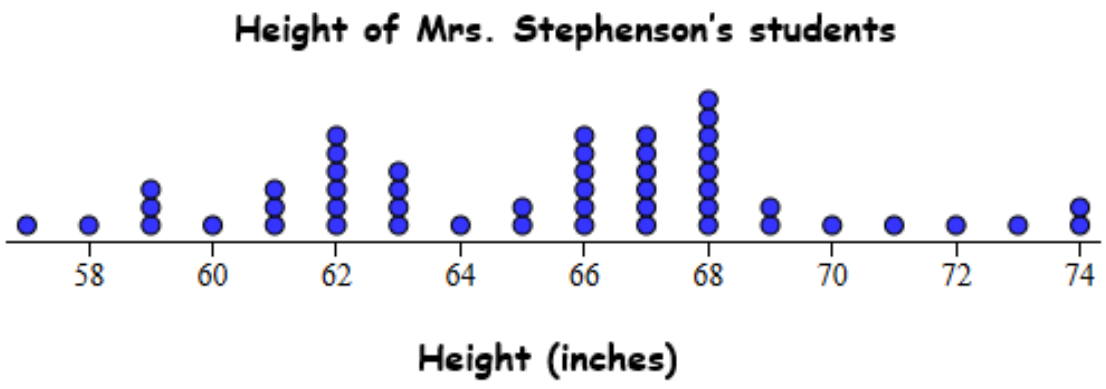
Record all answers on the colored cover sheet. 35 minutes, 40 problems, ~92% of individual score.
No talking during this individual test. A 5-minute time warning will be given.

	Questions 1-30: 2 points each
1	Evaluate: $15 - 5 \div 5 + 3$
2	McKinley's bedroom is 4 yards long. How many inches long is McKinley's bedroom?
3	What is the volume of this rectangular prism in cubic meters? All side lengths are shown in meters. 
4	What is the next number in this sequence? 67, 59, 51, __
5	The playground at Orchard Elementary School is made up of four rectangular lots that are each 10 feet by 7 feet. What is the total area of the playground in square feet?
6	As an integer, what is $32\frac{3}{4} + 12\frac{1}{4}$?
7	How many of the sequences shown here follow the rule to "multiply by 5" each time? 5, 25, 30, 150, 155, ... 1, 5, 25, 125, ... 2, 10, 50, 250, ... 6, 30, 150, 750, ... 10, 50, 100, 200, ...
8	Evaluate the following expression when x = 5 and y = 2: 2x + 6y
9	The diagram shows the number 830 being turned into the number 907, with each digit being transformed to the digit below it. How many of the small squares have to change color in order to make this change? 
10	Clara makes 109 cupcakes for the school bake sale, and packages them into boxes of 6. How many cupcakes will be left over after she packages as many full boxes as possible?
11	There are two 2-digit whole numbers that are each equal to their units digit squared. What is the larger of the 2-digit numbers?

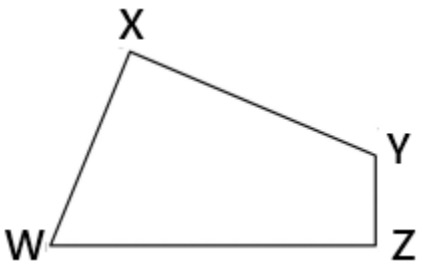
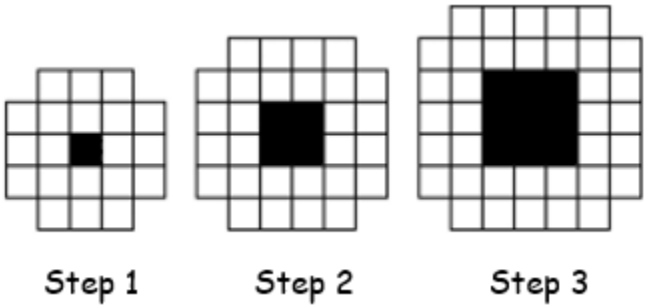
Continued on next page.

12	In a line of baby pandas, there are two pandas in front of a panda, two pandas behind a panda, and one panda between two pandas. What is the minimum number of pandas?
13	Starting at the point (3, 4), as shown on the coordinate plane, the circle moves up 3 units and then to the right 5 units, ending at a new point (x, y). What is x + y? 
14	Anika started watching Netflix at 2:35 p.m., and finished watching at 4:14 pm the same day. Her sister Daphne watched with her for the first 35 minutes. How many minutes did Anika watch Netflix alone?
15	When the following number is written in numeric form, what is the sum of its digits? Fifty-six thousand two hundred thirty-two
16	Madhavi has 22 gumballs. Five of them are blue, and the rest are either red or green. If one gumball is randomly selected, the probability that it is green is 50%. How many of the gumballs are red?
17	If ⊙ = 6, what is the value of the following expression? (⊙ × ⊙) - 5
18	How many integers are between -5.26 and $45\frac{3}{7}$?
19	Remy has a triangular block of cheese with a triangular hole cut out of the middle. How many faces does the block of cheese have? 
20	Uncle Fred has a jar containing $167.68 in pennies. If he divides the pennies equally among his 8 nieces and nephews, how many cents will each of them get?
21	There are 14 cats and 56 dogs at a pet daycare. How many times more dogs are there than cats?
22	Find the mean of the following data set: 16, 43, 32, 21, 14, 35, 0
23	The first three terms of a geometric sequence are given. What is the 8th term? 13, 26, 52, …
24	Victoria's recipe for salad dressing calls for 2 tablespoons of oil for every 3 tablespoons of vinegar. To make a total of 20 tablespoons of salad dressing, how many tablespoons of vinegar will she need?

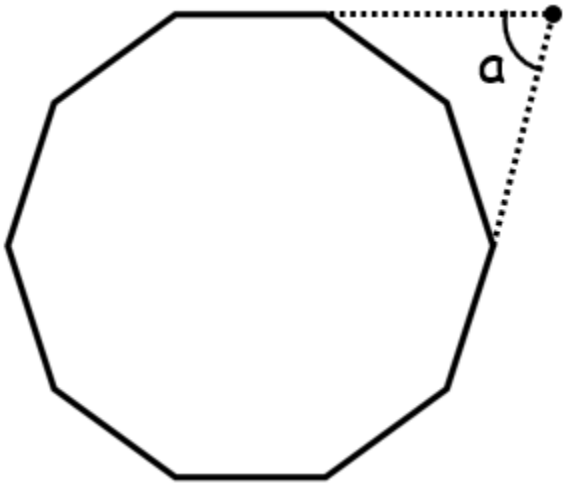
Continued on next page.

25	All tick marks are evenly spaced on the number line shown here. What number goes in the box with the question mark? 
26	Simplify: $\frac{(6^2+3^2)}{3} - 3$
27	Hot Mess Burgers keeps track of how their customers pay for their orders. In the last week, 49 customers paid cash, 120 customers used a credit card, and 31 customers used Apple Pay. Based on these results, what is the probability as a percent that the next customer will pay using a credit card?
28	Base 10 blocks can be used to represent whole numbers. In this example, the blocks can be combined to represent the number 1111.  Combining all of the blocks shown below will result in what number? 
29	A recipe for trail mix calls for cashews, chocolate chips and raisins in a ratio of 2:7:3. How many cup of cashews will Tatyana need to make 72 cups of trail mix?
30	Mrs. Stephenson collects data from her Statistics students every quarter to perform data analysis. For the class of students shown in this dot plot, what percentage of the students are less than 66 inches tall? 

Challenge Questions: 3 points each

31	Albert starts at a positive whole number A and counts up by fours until he reaches exactly 150. Beckett starts at a different positive whole number B and counts up by sixes until he hits exactly 150. It takes Albert exactly half as many steps to reach 150 as it takes Beckett. What is the largest possible value of A – B?
32	At McCarty Hall dormitory on the UW campus in Seattle, the room numbers are all 3 digit whole numbers. The first digit indicates the floor number, and the last two digits indicate the room number. For example, room 226 is on the 2nd floor, room number 26. There are 5 floors (numbered 1 to 5), and each floor has 28 rooms (numbered 1 to 28). How many times does the digit 3 occur in all of the room numbers of the dormitory?
33	In quadrilateral WXYZ shown here, WX = 7 units, XY = 9 units, YZ = 3 units, and WZ = 11 units. Angles X and Z measure 90 degrees each. In square units, what is the area of the quadrilateral WXYZ? 
34	Sena makes a pattern out of white tiles. The first three steps of the pattern are shown. How many total white tiles are needed to make Steps 9 and 10 of the pattern? 
35	A lock on a suitcase has a 3-number code, where each number is an integer from 1 to 20 inclusive (including 1 and 20), and none of the numbers are repeated. How many different ways can the 3-number code be chosen?
36	Let N be a positive integer. For how many values of N do N^2 and N^3 have the same number of digits as each other?
37	Triangle ABC has vertices at points A (-4, 0), B (-5, -3), and C (-3, -5). The triangle is rotated 90° counter-clockwise around the origin. What is the sum of all of six of the x- and y-coordinates of the new vertices after the given transformation?
38	Royee bought a used car in the year 2020 for $24,500. For each year after that, the value of the car depreciated (dropped) by 11%. As an integer, how much is the car worth in the year 2023, rounded to the nearest hundred dollars?

Continued on next page.

39	The following figure shows a regular decagon, where 2 sides have been extended until they intersect. What is the measure of angle a in degrees? 
40	The numbers 1, 2, 3, 4, 5, 6, 7 and 8 are divided among two boxes A and B. The sum of the numbers in each box is the same. There are exactly three numbers in box A. How many of the following statements are <u>definitely</u> true? • The sum of the numbers in box B is 18. • There are 6 numbers in box B. • The 8 is definitely in box A. • The 1 is definitely in box A. • The 2 is definitely in box B. • The 6 is either in box A or box B. • There are exactly 2 even numbers in box A.

"Math Is Cool" Masters — 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	17
2	144 [inches]
3	500 [cubic meters]
4	43
5	280 [square feet]
6	45
7	3
8	22
9	9 [squares]
10	1 [leftover]
11	36
12	3 [pandas]
13	15 [= x + y]
14	64 [minutes]
15	18 [= sum]

	Answer
16	6 [red gumballs]
17	31
18	51 [integers]
19	8 [faces]
20	2096 [cents]
21	4 [times more]
22	23 [= mean]
23	1664 [= 8^{th} term]
24	12 [tablespoons]
25	35
26	12
27	60 [%]
28	2213
29	12 [cups]
30	44 [%]

	Answer
31	96 [= A – B]
32	43 [3s] [times]
33	48 [square units]
34	176 [white tiles]
35	6840 [ways] [codes]
36	3 [values of N]
37	-4 [= sum]
38	17300 [$, dollars]
39	72 [°]
40	3 [true statements]

5^{th} grade — May 17, 2025

"Math Is Cool" Masters — 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 — May 17, 2025

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

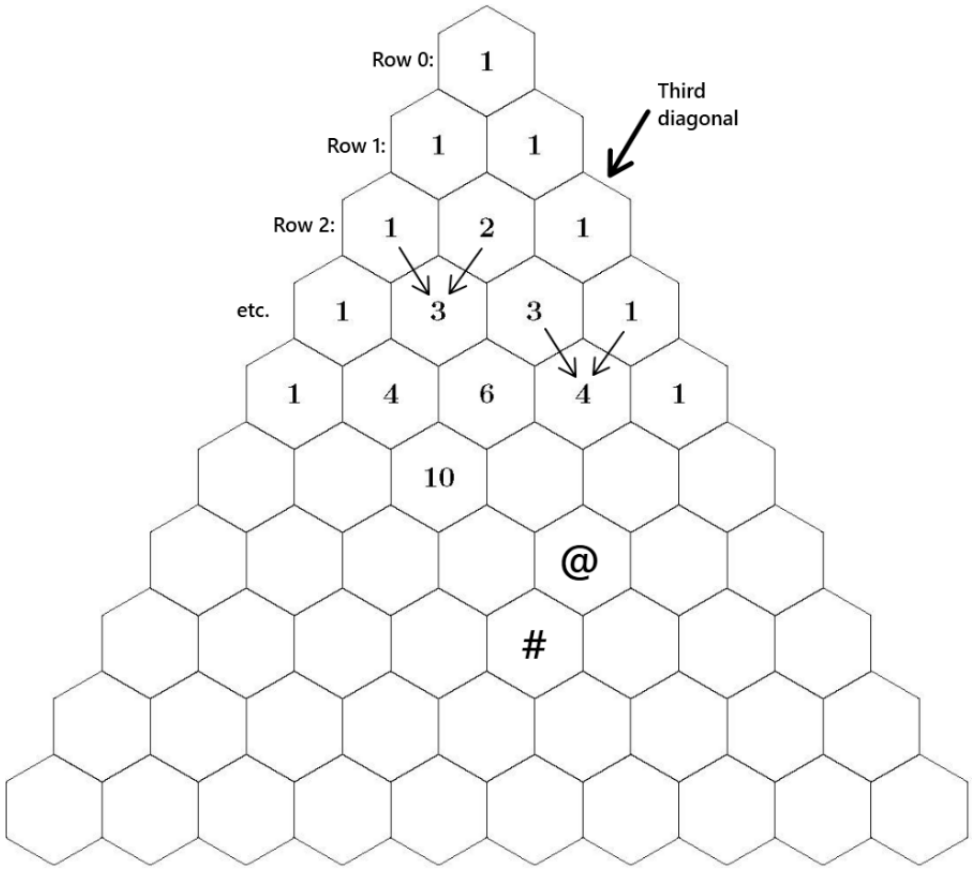
"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Team Multiple Choice Contest

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

A very famous triangular arrangement of numbers is called Pascal's Triangle. The first few rows of the pattern are shown here, and the pattern continues infinitely. The top Row is called Row 0, followed by Row 1, Row 2, and so on.



Row 0 consists of a single 1. The diagonals from the top down to the left and down to the right all contain the number 1. Every other number on the inside is the sum of the two numbers above it. For example, 1 + 2 = 3, and 3 + 1 = 4, as indicated by the arrows.
Pascal's Triangle is known to contain many interesting number patterns!

1 What number goes in the cell marked with the # symbol?

A) 10 B) 15 C) 21 D) 35 E) Answer not given.

2 What is the greatest number that appears in Row 8 of Pascal's Triangle?

A) 35 B) 56 C) 70 D) 126 E) Answer not given.

3 The third diagonal (indicated on figure) contains an interesting sequence of numbers, beginning with 1, 3, 6, 10, and so on. What is the 8th term in the sequence?

A) 28 B) 36 C) 45 D) 120 E) Answer not given.

4 The sums of the numbers in each Row also have an interesting pattern. What is the sum of all of the numbers in Row 10 of Pascal's Triangle?

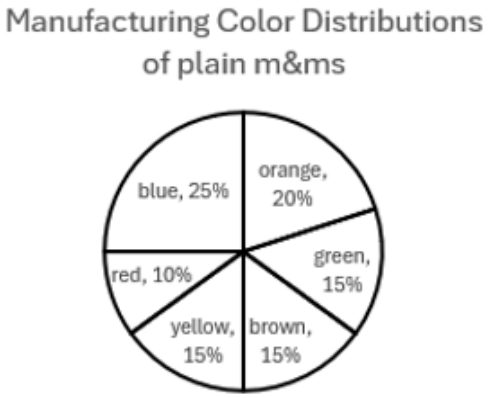
A) 512 B) 584 C) 756 D) 1024 E) Answer not given.

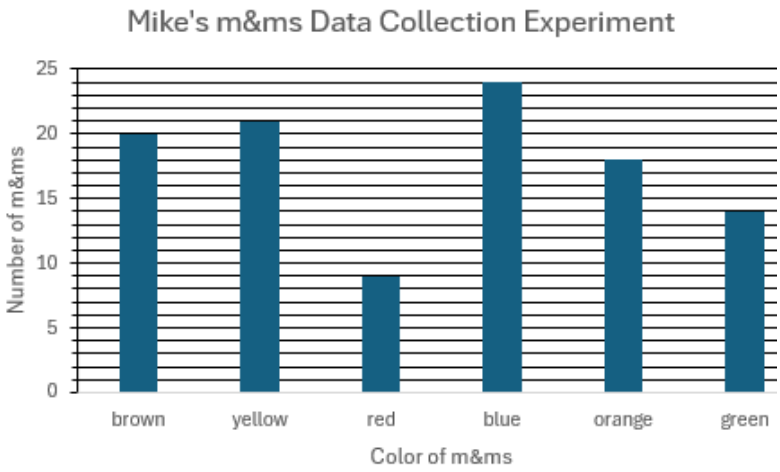
Continued on Next Page

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

The Mars Candy company has a certain set percentage for the colors of plain m&ms that are manufactured, as shown in the pie chart. While these percentages are maintained during the manufacturing process, the actual contents of individual bags of m&ms can vary.

Mike decided to test the claims of the manufacturer by counting the m&ms in a single "Share Size" package of m&ms. He counted a total of 106 m&ms, and the count of each color is shown in the bar chart.





5 If a package of m&ms contained exactly 100 m&ms, how many of them are expected to be blue, according to the manufacturing specifications?

A) 10 B) 15 C) 20 D) 25 E) Answer not given.

6 How many more yellow m&ms than red m&ms did Mike have in his package?

A) 12 B) 14 C) 15 D) 21 E) Answer not given.

7 Mike gives his friend Ron 1/2 of his brown m&ms, 1/3 of his yellow m&ms, and 3/4 of his blue m&ms. How many m&ms does Mike have left?

A) 71 B) 79 C) 83 D) 90 E) Answer not given.

8 If Mike had randomly selected one m&m out of his full package of m&ms, what is the probability to the nearest percent that it was either orange or green?

A) 18% B) 20% C) 24% D) 30% E) Answer not given.

Continued on Next Page

USE THE FOLLOWING INFORMATION TO SOLVE PROBLEMS #9 THROUGH #10.

Each symbol in the table is worth a different value. Each row shows the total sum of the symbols in that row.

★	+	♥	+	★	+	◎	= 19
♥	+	♥	+	♥	+	♥	= 20
◎	+	◎	+	◎	+	♥	= 23
★	+	★	+	☺	+	☺	= 24

9 What is the value of one heart (♥)?

A) 4 B) 5 C) 10 D) 20 E) Answer not given.

10 What is the value of two targets (◎) minus the value of one smiley face (☺)?

A) 4 B) 6 C) 8 D) 14 E) Answer not given.

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

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

"Math Is Cool" Masters — 2024-25
5th grade — May 17, 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.**

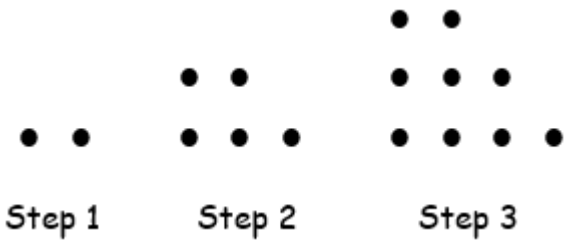
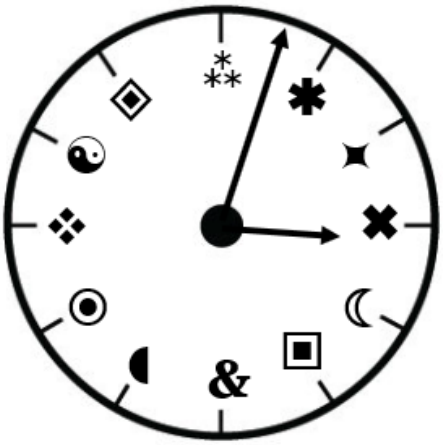
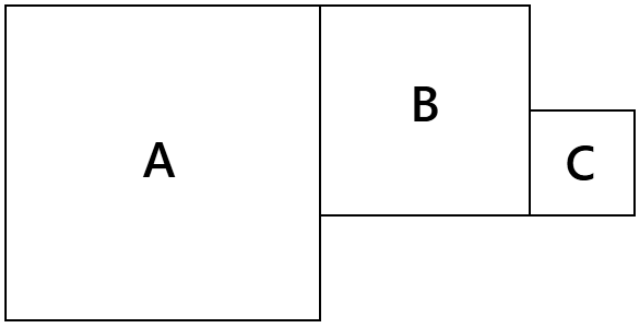
STUDENTS: DO NOT WRITE IN SHADED REGIONS

	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:**		

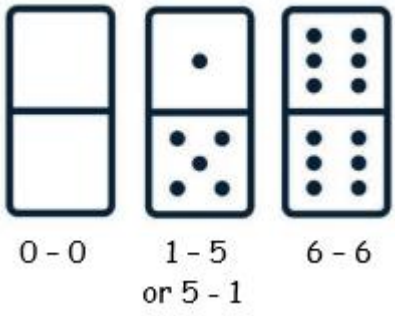
"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Team Contest

1	If the following pattern of dots continues, how many dots will be in Step 5? 
2	Kensington is making banana splits. Each banana split gets 1 scoop of vanilla ice cream, 1 scoop of chocolate ice cream, and 1 scoop of strawberry ice cream. How many total scoops of ice cream are needed to make 18 banana splits?
3	How many hours are there in the month of October?
4	Annabel has 3 times as many pencils as Kaydn. Kaydn has twice as many pencils as Raegan. If Raegan has fewer than 12 pencils, then what is the greatest number of pencils that Annabel can have?
5	The clocks at Wingding Elementary have symbols instead of numbers on their faces. As an integer, what is the solution to the following equation? ⁂ + ☯ - (☾ - ✱) = ? 
6	Squares A, B and C have side lengths of 3 units, 2 units, and 1 unit, respectively. In units, what is the outer perimeter of the combined shape? 

Continued on next page.

7	Charles has a deck of 25 cards. Each card is numbered either 4 or 5. The total value of all of the numbers on the cards is 114. How many cards are labeled with a 5?
8	A set of dominos consists of a certain number of tiles that each contain 2 integers, from 0 (represented by a blank) up to 6. All possible number pairs are represented once, from 0-0 to 6-6. The order of the numbers does not matter, for example 1-5 is the same as 5-1. How many total dominos are in a set? Examples: 
9	The express train from Chicago to Oak Brook travels for 18 miles at a speed of 72 miles per hour. The local train travels from Chicago to Oak Brook at an average speed of 54 miles per hour, and makes 6 stops along the way for 2.5 minutes each time. How many more minutes does the local train take for the trip compared to the express train?
10	Biff randomly chooses one of the positive integer divisors of 16, and Eho randomly chooses one of the positive integer divisors of 48. As a percentage, what is the probability that Biff's number is a factor of Eho's number?

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

Team Contest – Answer Key

5th grade

	Answer
1	20 [dots]
2	54 [scoops]
3	744 [hours]
4	66 [pencils]
5	19
6	18 [units]
7	14 [cards]
8	28 [dominos]
9	20 [more minutes]
10	60 [%]

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 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.

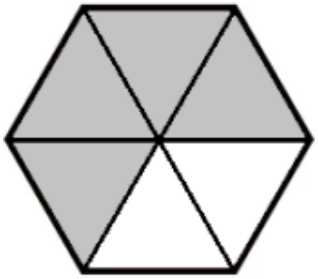
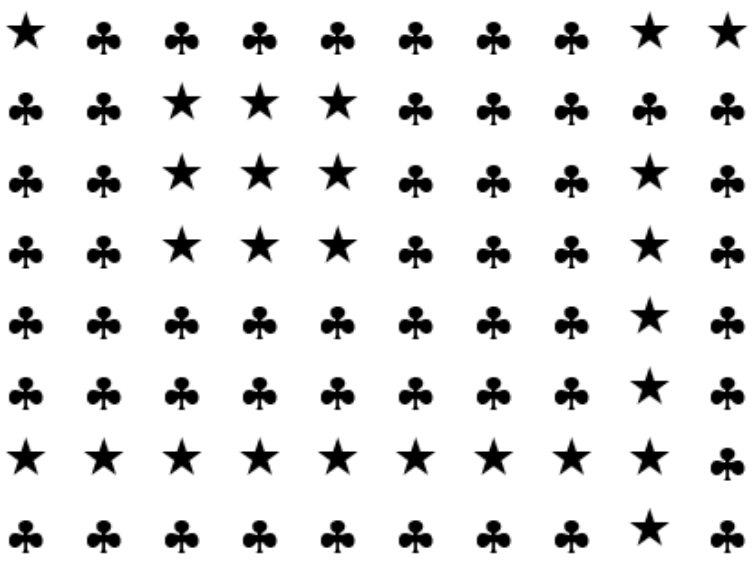
STUDENTS: DO NOT WRITE IN SHADED REGIONS

	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" Masters — 2024-25

5th grade — May 17, 2025

Linda Moore Triple Jump

1	Vayu reads pages 64 through 111 of his book *The Wild Robot* over the weekend. How many pages did he read over the weekend?
2	The following figure is a regular hexagon. If the area of the shaded region is 120 in^2, what is the area of the entire hexagon in square inches? 
3	Deja and Annabel write a secret code, where the number 26 = A, 25 = B, 24 = C, 23 = D, and so on all the way down to 1 = Z. They use the code to write words as integers. For example, Deja writes her name as the integer 23221726. What integer would they write to represent their friend, whose name is Ivory?
4	Some Bagels in Kennewick sells fresh bagels for $1.20 each, and day-old bagels for 80¢ each. If Maksim, has $24, how many more day-old bagels can he buy than fresh bagels?
5	How many more clovers (♣) than stars (★) are in the following figure? 
6	N is the smallest 4-digit whole number with the following features: 1. N is an odd number. 2. The sum of the digits in N is 8. 3. Each digit of N is different. What does N equal?

Continued on next page.

7	A rectangle has an area of 450 square inches. The length of the rectangle is twice as much as its width. What is the length of the rectangle in inches?
8	In a sequence, each term after the first term is four more than three times the previous term. If the fifth term is 484, what is the second term?
9	The cafeteria at Rosa Parks E.S. has apples, grapes, and bananas available with lunch. Each student may take at most one of each fruit. A total of 57 students got fruit with lunch. Five students got only an apple and 7 got only grapes. Out of the 14 students who got an apple and grapes, the 17 students who got grapes and a banana, and the 18 students who got an apple and a banana, 6 students got all three fruits. As a percent, how much of the fruit taken by the students was apples?
10	A set of six positive integers has a mean of 11, a median of 8 and a unique mode of 4. What is the largest possible value of the range of the six numbers?

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

Linda Moore Triple Jump – Answer Key

5th grade

	Answer
1	48 [pages]
2	180 [in^2]
3	1851292
4	10 [more bagels]
5	28 [more clovers]
6	1025 [= N]
7	30 [inches]
8	16 [= 2nd term]
9	31 [%]
10	31 [= range]

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 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" Masters — 2024-25

5th grade — May 17, 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" Masters — 2024-25

5th grade — May 17, 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" Masters — 2024-25

5th grade — May 17, 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.

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 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.

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

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	In square inches, what is the area of a right triangle with leg lengths three and eight inches?	
2	Two integers have a sum of fourteen and a product of forty-five. What is the larger of the two integers?	
3	How many yards are in eighty-one feet?	
4	Which of the following numbers is not a factor of thirty-six? Three, twelve, one, eight, two, eighteen, six	
5	What is the median of the following data set? Five, nine, six, four, five	
6	What number tripled is half of 54?	
7	Macy has two yellow, two red and two green marbles. One red marble is worth three yellow marbles. One yellow marble is worth three green marbles. Macy converts all of her marbles to green marbles. How many green marbles does she have?	
8	Using only the digits one, two or three, how many odd three-digit positive integers can be made assuming that digits can be used more than once?	

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #1

#	Problem	Answer
1	As an integer, what is ten raised to the fifth power?	100,000 [one hundred thousand]
2	How many ounces are in six pounds?	96 [ounces]
3	Jasper is building a rectangular prism using one hundred twenty unit cubes. The prism will be four units tall, and he wants the width to be shorter than the length. How many rectangular prisms with different dimensions can Jasper make?	4 [rectangular prisms]
4	Eggs are packed in boxes of six and twelve. What is the smallest number of boxes needed to pack exactly sixty-six eggs?	6 [boxes]
5	At a birthday party, two cakes were cut into four pieces each. Each of those pieces was then cut into three pieces. Each person ate one piece, and there were three pieces left over. How many people were at the party?	21 [people]
6	The year right now is two thousand twenty-five, and the sum of the digits in that year is nine. What is the next year where the sum of the digits will be nine?	2034 [= next year]
7	If one hundred sheets of paper weigh four ounces, how many ounces do one hundred fifty sheets of paper weigh?	6 [ounces]
8	What is seven times eight divided by two?	28
9	How many of the following numbers are prime? One, two, three, four, eleven, twenty-one	3 [numbers are prime]
10	Three hundred thirty-three divided by what number equals three point three three?	100

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #2

#	Problem	Answer
1	Eight hundred million plus eight thousand plus what number equals eight hundred million six hundred and eight thousand?	600,000 [six hundred thousand]
2	One point three meters is equal to how many centimeters?	130 [cm]
3	Julia built a rectangular prism out of unit cubes that is eight units long, three units wide and four units tall. What is the volume in cubic units of Kevin's rectangular prism, which is made out of half as many units cubes as Julia's?	48 [cubic units]
4	In a restaurant, when ordering items separately the soup costs six dollars and fifty cents, the main course costs fifteen dollars, and the dessert costs three dollars and fifty cents. When ordered together as a meal, the cost for all three is nineteen dollars. How many dollars cheaper is it to order the meal?	6 [$, $ cheaper]
5	What number comes next in the following sequence? Four, three, one, negative two, negative six, and so on.	-11
6	How many square centimeters are in the surface area of a cube that has an edge length of three centimeters?	54 [sq centimeters]
7	What is the positive difference between one million and ten million?	9,000,000 [9 million]
8	What is the value of two cubed times five squared?	200
9	How many of the following numbers are factors of thirty-six? One, four, six, eighteen and twenty-four	4 [factors of 36]
10	As an integer, what is one-third plus four-thirds plus four-thirds?	3

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #3

#	Problem	Answer
1	What number is ten times greater than five hundred?	5000
2	How many inches are in three and one-half yards?	126 [inches]
3	Tessa builds a cube of side length 5 units out of unit cubes, then removes one unit cube from each corner. What is the volume in cubic units of the remaining cube that she built?	117 [cubic units]
4	The sum of two numbers is two hundred and eight. One of the numbers is three times the other number. What is the value of the smaller number?	52 [= value of smaller number]
5	A circular pizza with radius six inches is cut into four equal pieces. The area of each piece is A times pi square inches. What is the value of A?	9 [= A]
6	Ten runners are in a running race. At the finish, there are three more runners behind Alison than there are in front of her. As an integer, in which position number did Alison finish?	4 [4th] [position]
7	One-half of a number is four. What is twice the number?	16 [= twice the number]
8	How many square inches are in a rectangle that measures four feet by five feet?	2880 [square inches]
9	What is the least common multiple of seven and five?	35 [= LCM]
10	What is the largest sum that can be made by adding exactly two of the following numbers? Eleven, nine, four, twenty-four, ten	35 [= largest sum]

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #4

#	Problem	Answer
1	Six plus eleven plus one equals eight plus four plus what number?	6
2	How many days are in the months of June and July combined?	61 [days]
3	A rectangular prism with dimensions of eight, twelve and two centimeters has the same volume as a rectangular prism with dimension of six, four and how many centimeters?	8 [cm]
4	The sum of three numbers is ninety. One of the numbers is twenty-four. What is the mean of the other two numbers?	33 [= mean]
5	The longest side of a right triangle is five feet, and the shortest side is three feet. In square feet, what is the area of the triangle times two?	12 [square feet]
6	The mean of ten numbers is seven point two. When an eleventh number is added, the mean becomes eight. What is the eleventh number?	16 [= 11th number]
7	What is the remainder when the sum of the first three prime numbers is divided by the fourth prime number?	3 [= remainder]
8	How many hours will it take Eli to drive four hundred ninety-five miles at forty-five miles per hour?	11 [hours]
9	How many of the following numbers are divisible by nine? Nine, twenty-four, fifty-four, ninety-two, one-hundred seventeen	3 [numbers are divisible by 9]
10	What is seven hundred twenty-eight divided by seven?	104

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #5

#	Problem	Answer
1	What number do you get by reversing the digits of one hundred thousand four hundred twenty-five?	524001 [five hundred twenty-four thousand and one]
2	One kilogram plus three hundred twenty grams equals how many grams?	1320 [grams]
3	In square meters, what is the area of a rectangle with a length of three and one-half meters and a width of twelve meters?	42 [sq meters]
4	Zane collected eighteen thousand stamps over a fifty-week period. What is the mean number of stamps that he collected each week?	360 [stamps]
5	A, B, C, D, E and F each randomly pick a different integer from one to six. A's number is twice as big as B's, and three times as big as C's. D's number is four times as big as E's. What number does F have?	5 [= number F has]
6	An integer from one to ten inclusive is randomly selected. As a percentage, what is the probability that it is a perfect square?	30 [%]
7	What is the minimum number of US coins needed to make exactly forty-four cents?	7 [coins]
8	How many degrees are in the complement of a sixty-four degree angle?	26 [degrees]
9	What is the largest factor of eighty-four that is not eighty-four?	42 [= largest factor]
10	The first number in a sequence is forty-eight, and the rule is to subtract four each time. What is the fourth term in the sequence?	36 [= 4th term]

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL ROUND #6

#	Problem	Answer
1	Forty-three thousand seven hundred fifty-two minus what number equals forty-two thousand three hundred fifty-two?	1400 [fourteen hundred, or one thousand four hundred]
2	Four and one-third yards equals how many feet?	13 [feet]
3	In square inches, how much bigger is the area of a rectangle with side lengths eight and nine inches compared to a square with a side length of four inches?	56 [sq inches]
4	How many thirds are in five and two-thirds?	17 [thirds]
5	Each row of Moore Theater has thirty seats. Rows ten through twenty are reserved for a field trip. How many seats are reserved for the field trip?	330 [seats]
6	How many integers that contain only the digits one, two or three are larger than ten and smaller than thirty-two?	7 [integers]
7	Eleven flags are placed along a race course, with one flag at the beginning and one flag at the end. All flags are spaced equally, with one point five miles between each flag. In miles, what is the total length of the race course?	15 [miles]
8	What is the sum of the next two terms in the sequence that begins as follows: one, four, seven, ten, and so on	29 [= sum]
9	What is the smallest perfect cube that is greater than one hundred?	125 [= smallest perfect cube]
10	What is two-thousand three hundred times zero point one?	230

"Math Is Cool" Masters — 2024-25

5th grade — May 17, 2025

Key

COLLEGE BOWL – EXTRA QUESTIONS

#	Problem	Answer
1	It takes Stella five minutes to walk one-quarter of the way home from baseball practice. At the same rate, how many minutes does it take her to walk the rest of the way home?	15 [minutes]
2	What is the value of the number of square inches in one square yard divided by the number of square inches in one square foot?	9
3	If A star B equals A + two B, then what is the value of four star five?	14 [= 4*5]
4	On five consecutive days in Eagle River Wisconsin, the low temperatures were two, negative nine, nine, seven and negative four degrees Celsius. What was the mean low temperature in degrees Celsius?	1 [degree C]
5	The area of a right triangle is six hundred square feet, and the length of the base is thirty feet. In feet, what is the height?	40 [feet]
6	What is one-half percent of two hundred?	1
7	What number tripled is half of thirty-six?	6
8	Eight U.S. coins are worth a total of thirty-eight cents. How many of the coins are nickels?	3 [nickels]
9	What is the sum of the number of faces and edges of a cube?	18 [= sum]
10	Four cubed plus six squared equals ten raised to the X. What is X?	2 [= x]