"Math is Cool" Championships – 2013-14

Sponsored by:

March 7, 2014

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. Bad sportsmanship may result in disqualification.*
- *Calculators or any other aids may not be used on any portion of this contest.*
- *Unless stated otherwise:*
  - *For problems dealing with money, a decimal answer should be given.*
  - *Express all rational, non-integer answers as reduced common fractions.*
- *For fifth and sixth grade, all fractions and ratios must be reduced.*
- *Counting or natural numbers refer to the numbers 1,2,3,4 and so on and do NOT include 0.*
- *Units are not necessary unless it is a problem that deals with time and, in that case, am or pm is needed. However, if you choose to use units, they must be correct.*
- *Leave all answers in terms of π where applicable.*
- *Do not round any answers unless stated otherwise.*
- *Record all answers on the colored cover sheets in the answer column only.*
- *Make sure all answer sheets have all the information filled out at the top of the sheet.*
- *Tests will be scored as a 0 if answers are not recorded correctly on the answer sheets.*
- *Blank answer sheets and answer sheets with no name will also be scored as a 0.*

Mental Math – 30 sec per question

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

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

"Math is Cool" Championships -- 2013-14

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

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

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

"Math is Cool" Masters – 2013-14

March 7, 2014

STUDENT NAME: _____ **School Name:** _____

Proctor 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:			

5th Grade

“Math is Cool” Championships – 2013-14

Sponsored by:

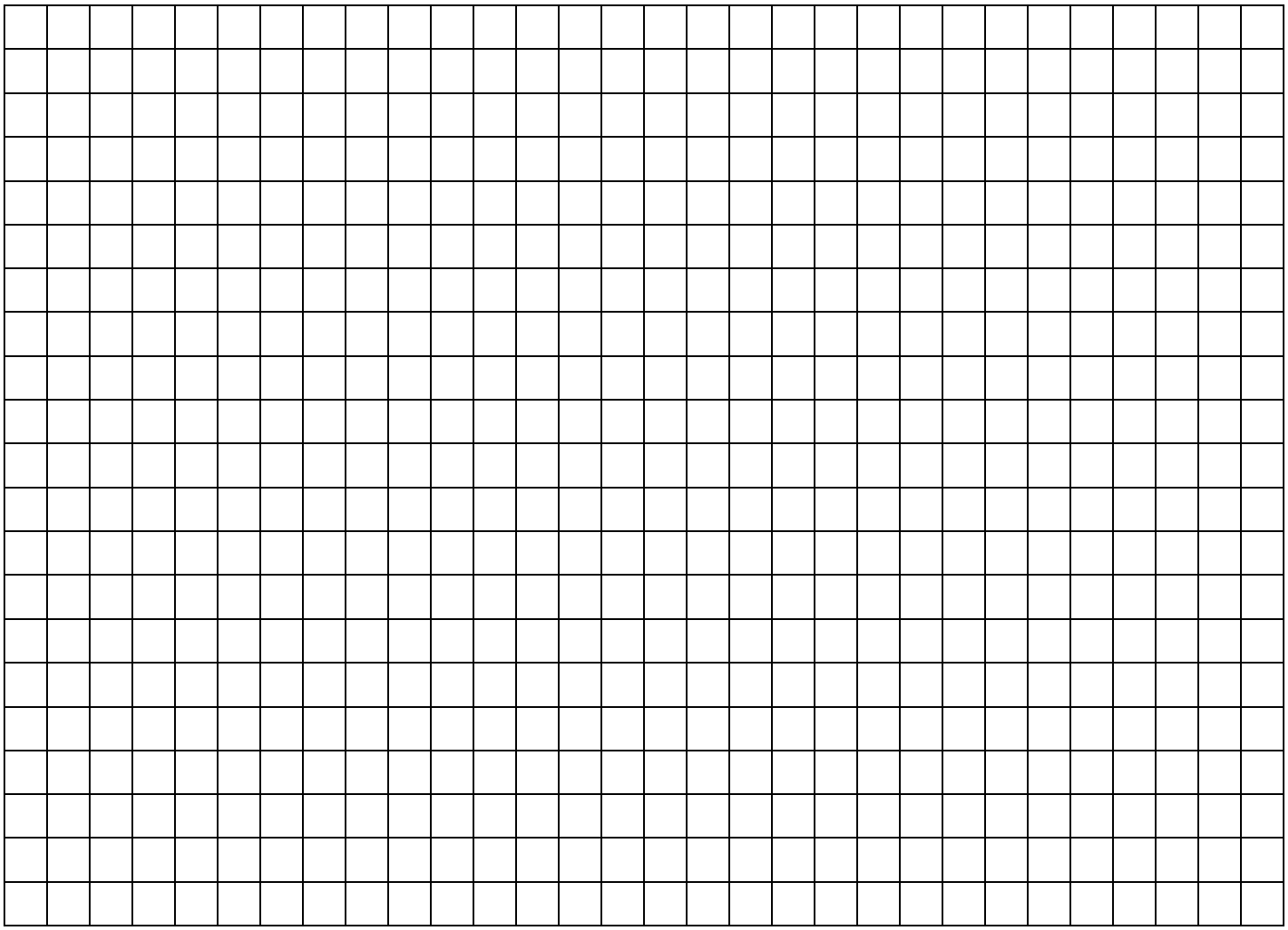
March 7, 2014

Individual Contest – 5th Grade

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

INDIVIDUAL TEST - 35 minutes

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



"Math is Cool" Championships – 2013-14

Sponsored by:

5th Grade – March 7, 2014

Individual Contest

Record all answers on the colored cover sheet.

	Questions 1-30: 2 points each
1	Evaluate 32 x 12
2	Evaluate: 1,001,001 – 52,435
3	Callie has 14 cats and Cal has 17 cats. How many cats do they have altogether?
4	How many sides does a triangle have?
5	Find the value of 3.87 + 2.991. Express your answer as a decimal.
6	Carol brought 22 pieces of candy to school to share with her 5 friends. She gave out as much candy as she could while giving each of her friends an equal number of whole pieces of candy. How many pieces of candy did she have left over?
7	Millie has $5.25 in quarters. How many quarters does she have?
8	What is the sum of the first 4 prime numbers?
9	Lee has 12 friends who each have 4 pets. How many total pets do Lee's friends have?
10	Which statement is false? Answer with a letter. A) 18 < 21 B) 39÷3 = 16-3 C) 45+18 > 18-15 D) 20×4 = 5×18
11	Biff has 16 cookies while Eho has 4 cookies. How many cookies would Biff need to give to Eho so they would each have the same number of cookies?
12	Find the value of 8n – 4m when n = 4 and m = 2.
13	Kim has 12 dollars to purchase fancy pencils that cost $2.60 apiece. What is the largest number of these pencils she can buy?
14	What is the average (mean) of the following set of data? 2, 9, 14, 1, 3, 1
15	What is the perimeter in inches of the rectangle with two sides of length 10 inches and the other two sides of length 6 inches?
16	A = 15/4, B = 7/8 and C = 2/3. Put these numbers in order of increasing size (smallest first). Your answer should consist of 3 letters in the correct order.
17	Jae has 25 more apples than Moritz. Together they have 127 apples. How many apples does Moritz have?
18	Sally has a math class on the 11^{th} floor of Einstein tower. The elevator is broke and she is on the first floor and needs to walk up the stairs. There are 23 steps connecting any two floors. How many steps will she need to climb?

19	A bag of jellybeans has 63 jellybeans. How many bags of jellybeans would you need in order to get at least 1000 jellybeans?
20	What is the next year that will use the same 4 digits as the year "two thousand fourteen"?
21	Maria is three times as old as Paul, and Paul is 7 years older than Gena. If Gena is 5 years old, how many years old is Maria?
22	How many six-sided (cubical) dice would you need before it would be possible to roll a sum of 83 by rolling all the dice simultaneously?
23	When I multiply my number by 4 and then subtract the product from 100, I get 88. What is my number?
24	Girl Scout cookie boxes are selling for 4 dollars each. If a box has 20 cookies inside, how many CENTS does each cookie cost, on average?
25	Ned, Fred, and Phil went to a farm to pick tomatoes. Ned picked 1/3 as many tomatoes as Fred picked. Fred picked 4 times as many as Phil picked. If Phil picked 27 tomatoes, how many tomatoes did Ned pick?
26	Find the sum of the following two fractions: $\frac{13}{12}+\frac{2}{15}$ Express your answer as a simplified mixed number.
27	A certain clock gains 3 minutes every hour. If this clock shows the correct time at 6:00 AM, what time will the clock show when it is 1:00 PM of the same day?
28	Two snails are racing toward a tasty fern. One snail is 41 inches away from the fern, and travels at 3 inches per day. The other snail is 48 inches away from the fern and travels at 4 inches per day. How many days will it take for them to be the same distance from the fern?
29	Sharon bought a new calculator that cost 200 dollars. If she paid a total of $210, including sales tax, what is the tax rate? Answer as a percentage.
30	How many squares of side length 3 meters would it take for their total area to be **greater** than the area of a square of side length 9 meters?

Challenge Questions: 3 points each	
31	Three people are writing problems for a test. Alfred writes one problem a minute, Bobby writes one problem every two minutes, and Carol writes three problems every two minutes. How many problems can they write together in an hour?
32	On a game show, a contestant is allowed to choose one of three doors. One door has a prize while the other two have nothing behind them. The doors are labeled as shown below; however, only one door is labeled truthfully. Which door number has the prize behind it? Door 1: The prize is here. Door 2: The prize is not here. Door 3: The prize is not behind door number 1.

33	When two factors of the number 555 are added, the sum is 126. What two factors were added? (A factor is a counting number that divides into another counting number with no remainder.)
34	Fred wants to go on the class trip to Washington DC. The trip costs $3100. Fred's parents will pay 40% of the total cost, if Fred raises the rest of the money. Fred had $250 in savings, and then got $100 as a birthday present from his grandmother. If he uses this money to help pay for the trip, how many MORE dollars does Fred need to raise?
35	Hal and Jan each have 2 identical wooden blocks, which they each glue together to make a solid rectangular structure. Hal glues his 2 blocks so as to make a structure with the largest possible surface area, and Jan glues her 2 blocks so as to make a structure with the smallest possible surface area. The difference in surface area between Hal's structure and Jan's is 480 square inches. The blocks are 5 inches wide and 2 inches thick. If their length is the largest dimension, how many inches long are the blocks?
36	A train traveling at 800 meters per minute travels through a tunnel 2900 meters long. It takes four minutes between the moment the front of the train enters the tunnel and the moment the end of the train exits the tunnel. How many meters long is the train?
37	The lights at a concert changed color every 42 seconds. First the lights were orange, then blue, then purple, and then continued this cycle throughout the concert. If the concert was 33 minutes long, how many SECONDS was the light blue?
38	The country of Kurtlandia has a coin worth 11 cents and a coin worth 13 cents. What is the largest number of cents that CANNOT be made using these Kurtlandish coins?
39	How many minutes would it take to drive 80 miles at 48 miles per hour?
40	Cari's favorite number is a 4-digit counting number divisible by six. The middle two digits are 2 and 3, but not necessarily in that order. How many numbers fit the description of Cari's favorite number?

"Math is Cool" Championships – 2013-14

5th Grade – March 7, 2014

School Name____ _____Team #_____

Proctor Name_____Room #_____Division: _____

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

This test is the only test where you will be penalized for incorrect responses. You will receive 2 points for a correct letter response, 0 points for leaving it blank and -1 point for an incorrect response. When you are prompted to begin, tear off the colored sheet, pass out a copy of the test to each team member, and begin testing. ***Since this is a multiple choice test, ONLY a letter response should be listed as an answer on the answer sheet.***

Correct responses are worth 2 points, incorrect responses are worth -1 point and no response is 0 points.

DO NOT WRITE IN SHADED REGIONS

	Answer	-1, 0 or 2	-1, 0 or 2
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

"Math is Cool" Championships – 2013-14

Sponsored by:

5th Grade – March 7, 2014

Team Multiple Choice Contest

USE THE FOLLOWING INFORMATION TO ANSWER QUESTIONS 1-3:

Farmer John is figuring out how much food to store for the winter for his animals. Farmer John plans to feed his animals stored food for 180 days. The table shows amounts of food needed for one animal for one day.

Type of animal	Amount of food needed per animal per day
Chicken	3 oz of grain
Cow	25 pounds of hay
Horse	17 pounds of hay

1 How many pounds of hay does a cow eat in one day?

A) 3 B) 25 C) 17 D) 50 E) Answer not given.

2 How many pounds of hay should farmer John store for one horse for the winter?

A) 1440 B) 2060 C) 3120 D) 4170 E) Answer not given.

3 Farmer John will need to store 1620 ounces of grain for his chickens for the winter. How many chickens does he have?

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

USE THE FOLLOWING INFORMATION TO ANSWER QUESTIONS 4-6:

A special deck of cards contains cards with the numbers one through seven on them. There are five identical cards of each number (no suits), for a total of 35 cards.

4 What is the probability of drawing a card numbered five or higher in one random draw from a full deck?

A) 1/7 B) 3/7 C) 5/7 D) 4/7 E) Answer not given.

5 Monty starts drawing at random from a full deck. How many cards must he draw to make sure he draws at least one 1 and one 7?

A) 7 B) 10 C) 31 D) 27 E) Answer not given.

6 Mary has only odd-numbered cards in her hand. The numbers on the cards in her hand have a total of 50. What is the smallest number of cards Mary could have in her hand?

A) 7 B) 8 C) 9 D) 10
E) A point total of 50 cannot be made with only odd-numbered cards.

USE THE FOLLOWING INFORMATION TO ANSWER QUESTIONS 7-10:
The table below describes Kurt's collection of music CDs. "Time" refers to the total length of the CD.

CD	Time in minutes	Number of Tracks on CD
Haydn	32	6
Bach	40	13
Vivaldi	40	16
Beethoven	56	4
Mozart	72	12
Schubert	40	11
Tchaikovsky	60	3
Stravinsky	52	7

7	What is the mode of the length in minutes of the CDs in this collection? A) 40 B) 51 C) 56 D) 32 E) Answer not given.
8	Which CD has the greatest average (mean) track length in minutes? A) Tchaikovsky B) Haydn C) Vivaldi D) Beethoven E) Answer not given.
9	What is the median of the length in minutes of the CDs in this collection? A) 49 B) 54 C) 52 D) 46 E) Answer not given; a median cannot be calculated for these values.
10	How many different sets of 3 CDs can he choose that total at least 3 hours? (Sets are different if at least one member of the set is different. The order of choosing the CDs in a set is not important.) A) 6 ways B) 3 ways C) 1 way D) 0 ways E) Answer not given.

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"Math is Cool" Championships – 2013-14

5th Grade – March 7, 2014

School Name_____Team #_____

Proctor Name_____Room #_____Div: _____

Team Contest – Score Sheet – 15 minutes – 30% of team score

When you are prompted to begin, tear off the colored sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as a 1 or 0. Record all answers on the colored answer sheet.

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

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5th Grade – March 7, 2014

Team Contest

1	Max is playing with a cardboard "clock" used to teach children to tell time. He lays the clock down on a map and points the hour hand east and the minute hand southwest. What is the degree measure of the smaller angle between the two hands?
2	There are some red marbles and some blue marbles in a jar. When drawing one marble from the jar at random, the probability of getting a red marble is 3/8. How many blue marbles are in the jar if there are at least 10 but no more than 20 marbles **in all**?
3	What was the time 73 minutes before 6:35 PM? Include AM or PM with your answer.
4	Lu has 15 standard U.S. coins worth $2.50 in all. No coin is worth more than 30 cents or less than 3 cents. What is the largest number of dimes Lu could have?
5	A bottle half full of milk weighs 14 ounces. This bottle completely full of milk weighs 1 pound 9 ounces. How many ounces does the empty bottle weigh?
6	The first page of my new cookbook is page 1 and the last page is page 120. Page 1 is a right-hand page, each sheet is double sided (so page 2 is on the same sheet as page 1), and all pages are numbered. However, the book is defective. It is missing pages 39 through 54, and it has two copies of pages 77 through 108. Counting each double-sided sheet as two pages, how many pages does my defective book have?
7	Sami walks at a rate of 220 feet per minute. Tami walks at a rate of 330 feet per minute. If they are 5000 feet apart and start at the same time to walk toward each other, how many minutes will it take them to meet? **Give your answer as an approximation by rounding to the nearest whole minute.**
8	I am thinking of a counting number between 200 and 300. My number is a multiple of 12. All of its digits are different. The sum of its digits is odd. What is the SUM of all the numbers I could be thinking of?
9	Every Monday, Lisa puts $3.50 from her allowance into her piggy bank. Every Wednesday, she takes out $1.85 and spends it. On Sunday, July 19th, she has $47 in her bank. What is the date (month and day of the month) of the first **TUESDAY** on which she will have over $75 in her piggy bank?
10	Before they went to the MathMart shop, Alan had twice as much money as Beth. At MathMart, Beth spent 30% of her money, and Alan spent $42 more than Beth. Together, they had a total of $54 left when they finished paying for their purchases. How much money, in dollars, did Alan spend at MathMart?

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5th Grade – March 7, 2014

Team Contest

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8	I am thinking of a counting number between 200 and 300. My number is a multiple of 12. All of its digits are different. The sum of its digits is odd. What is the SUM of all the numbers I could be thinking of?
9	Every Monday, Lisa puts $3.50 from her allowance into her piggy bank. Every Wednesday, she takes out $1.85 and spends it. On Sunday, July 19th, she has $47 in her bank. What is the date (month and day of the month) of the first **TUESDAY** on which she will have over $75 in her piggy bank?
10	Before they went to the MathMart shop, Alan had twice as much money as Beth. At MathMart, Beth spent 30% of her money, and Alan spent $42 more than Beth. Together, they had a total of $54 left when they finished paying for their purchases. How much money, in dollars, did Alan spend at MathMart?

"Math is Cool" Championships – 2013-14

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5th Grade – March 7, 2014

Team Contest

1	Max is playing with a cardboard "clock" used to teach children to tell time. He lays the clock down on a map and points the hour hand east and the minute hand southwest. What is the degree measure of the smaller angle between the two hands?
2	There are some red marbles and some blue marbles in a jar. When drawing one marble from the jar at random, the probability of getting a red marble is 3/8. How many blue marbles are in the jar if there are at least 10 but no more than 20 marbles **in all**?
3	What was the time 73 minutes before 6:35 PM? Include AM or PM with your answer.
4	Lu has 15 standard U.S. coins worth $2.50 in all. No coin is worth more than 30 cents or less than 3 cents. What is the largest number of dimes Lu could have?
5	A bottle half full of milk weighs 14 ounces. This bottle completely full of milk weighs 1 pound 9 ounces. How many ounces does the empty bottle weigh?
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5th Grade – March 7, 2014

School:_____Team #_____

Proctor: _____ Room #_____Div _____

PRACTICE RELAY

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

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5th Grade	Practice Relay – Person 1
Question 1	What is the smallest counting number greater than 1?

5th Grade	Practice Relay – Person 1
Question 1	What is the smallest counting number greater than 1?

5th Grade	Practice Relay – Person 2
Question 1	What is the smallest counting number greater than 1?
Question 2	Take TNYWG and add it to 100.

5th Grade	Practice Relay – Person 2
Question 1	What is the smallest counting number greater than 1?
Question 2	Take TNYWG and add it to 100.

5th Grade	Practice Relay – Person 3
Question 2	Take TNYWG and add it to 100.
Question 3	Subtract TNYWG from 2014.

5th Grade	Practice Relay – Person 3
Question 2	Take TNYWG and add it to 100.
Question 3	Subtract TNYWG from 2014.

5th Grade	Practice Relay – Person 4
Question 3	Subtract TNYWG from 2014.
Question 4	Divide TNYWG by 2.

5th Grade	Practice Relay – Person 4
Question 3	Subtract TNYWG from 2014.
Question 4	Divide TNYWG by 2.

5th Grade	Relay #1 – Person 1
Question 1	What is the smallest two-digit ODD counting number?

5th Grade	Relay #1 – Person 1
Question 1	What is the smallest two-digit ODD counting number?

5th Grade	Relay #1 – Person 2
Question 1	What is the smallest two-digit ODD counting number?
Question 2	Take TNYWG and subtract it from 316.

5th Grade	Relay #1 – Person 2
Question 1	What is the smallest two-digit ODD counting number?
Question 2	Take TNYWG and subtract it from 316.

5th Grade	Relay #1 – Person 3
Question 2	Take TNYWG and subtract it from 316.
Question 3	What is the remainder when you divide TNYWG by 7?

5th Grade	Relay #1 – Person 3
Question 2	Take TNYWG and subtract it from 316.
Question 3	What is the remainder when you divide TNYWG by 7?

5th Grade	Relay #1 – Person 4
Question 3	What is the remainder when you divide TNYWG by 7?
Question 4	How many inches are in TNYWG yards?

5th Grade	Relay #1– Person 4
Question 3	What is the remainder when you divide TNYWG by 7?
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5th Grade	Relay #2 – Person 1
Question 1	In the following sequence, each number is twice the previous number. What is the next number in the sequence 1, 2, 4, __?

5th Grade	Relay #2 – Person 1
Question 1	In the following sequence, each number is twice the previous number. What is the next number in the sequence 1, 2, 4, __?

5th Grade	Relay #2 – Person 2
Question 1	In the following sequence, each number is twice the previous number. What is the next number in the sequence 1, 2, 4, __?
Question 2	What is the Lowest Common Multiple of TNYWG and the number that is one less than TNYWG?

5th Grade	Relay #2 – Person 2
Question 1	In the following sequence, each number is twice the previous number. What is the next number in the sequence 1, 2, 4, __?
Question 2	What is the Lowest Common Multiple of TNYWG and the number that is one less than TNYWG?

5th Grade	Relay #2 – Person 3
Question 2	What is the Lowest Common Multiple of TNYWG and the number that is one less than TNYWG?
Question 3	Add TNYWG to the smallest square number larger than TNYWG.

5th Grade	Relay #2 – Person 3
Question 2	What is the Lowest Common Multiple of TNYWG and the number that is one less than TNYWG?
Question 3	Add TNYWG to the smallest square number larger than TNYWG.

5th Grade	Relay #2 – Person 4
Question 3	Add TNYWG to the smallest square number larger than TNYWG.
Question 4	A factor of TNYWG is a counting number that will divide into TNYWG leaving no remainder. Find the difference between TNYWG and the sum of all the factors of 30.

5th Grade	Relay #2 – Person 4
Question 3	Add TNYWG to the smallest square number larger than TNYWG.
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"Math is Cool" Championships -- 2013-14

5th Grade – March 7, 2014

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 – 2013-14

5th Grade – March 7, 2014

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Do not use tally marks.

College Bowls

5th Grade

SETS 1-6

w/Extra Questions at the end.

COLLEGE BOWLS INSTRUCTIONS

Read these to the competitors before first round:

COLLEGE BOWLS - up to 10 minutes per round – 10 problems per round – 10% of team score

1. *All competitors must be facing the front of the room in one row. All spectators need to be behind the competitors.*
2. *A maximum of ten questions per round will be scored. It is OK for both teams to score the same number of points! The proctor will record the points earned on each team's score sheet.*
3. *You may use scratch paper and pencil. You may talk with your teammates while arriving at a solution. An Electronic College Bowl Apparatus (CBA) will be used to identify the first team to have an answer.*
4. *During these rounds, the questions will be read twice and a maximum time of 45 seconds will be allowed for you to answer after the second reading of the question is complete. If a team buzzes in after the second reading and gives an incorrect response, the other team has the remainder of the 45 seconds to respond. You may interrupt (buzz in) while a question is being read, however, if you do, the proctor will stop and an immediate response is needed. If the correct response is given, a new question will be asked. Otherwise, the question will be reread for the other team, making sure it has two full readings. Forty-five seconds will be given for the team to respond from the completion of the last reading. If an immediate response is not given after a team pulls the string, their lack of an answer in a timely manner is considered incorrect. In the event that only one team is competing in a round (i.e., one team is absent), the team competing will have a maximum of 30 seconds in which to buzz in.*
5. *You do not need to wait to be acknowledged by the proctor; however, it is your right to do so if you would like to be acknowledged.*
6. *If two students from the same team answer at the same time with different answers, the answer will be considered incorrect.*
7. *If a problem arises with one of the questions, an extra question will be asked to replace that question. There is only one extra question per round. If the round finishes early, you need to stay in the room for the remaining time.*

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5th Grade – March 7, 2014

COLLEGE KNOWLEDGE BOWL ROUND #1 – SET 1

#	Problem	Answer
1	If it costs nine cents to print each picture, how much, in dollars, will it cost to print 300 pictures?	[$] 27.00
2	How many quarts are in a gallon?	4 [quarts]
3	Joe and Caroline are siblings, and share a house with all their other siblings. If Joe has 3 sisters and Caroline has 2 brothers, how many people share the house?	5 [people]
4	Georgia's secret number is 10 more than the 7th prime number. What is Georgia's secret number?	27
5	Find the product of 1 times 2 times 3 times 4.	24
6	A classroom has 22 students. If each table can seat 3 students, how many tables are needed so every student has a seat?	8 [tables]
7	What is the smallest 2-digit counting number for which the sum of its digits is 14?	59
8	A pencil costs 17 cents and an eraser costs 62 cents. Harry bought one eraser and spent a total of 2 dollars and 83 cents. How many pencils did Harry buy?	13 [pencils]
9	Nine is what percent of 60?	15 [percent]
10	Fran sent a survey to her friends about whether they liked pizza or salad. Ten people said they liked pizza and eight said they liked salad. Six people said they liked both pizza and salad. If everybody surveyed gave an answer, how many people did Fran survey?	12 [people]

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COLLEGE KNOWLEDGE BOWL ROUND #2 – SET 2

#	Problem	Answer
1	Four friends went to a candy store and bought a bag of candy for one dollar and sixty four cents. The four friends shared the cost equally. How many cents did each friend spend?	41 [¢]
2	What is 17 times 12 divided by 3?	68
3	Jayze drew a card from a standard deck. This card was black, it was not a face card, and it had a prime number on it. How many cards in the deck fit this description?	8 [cards]
4	On a staircase made of blocks, each block has a height of eight inches. How many blocks are needed to have a total height of 4 feet?	6 [blocks]
5	What is five plus the number that is twelve more than five?	22
6	Jake is selling lemonade for 50 cents a cup. After an hour, he has taken in sixty-five dollars and fifty cents. How many cups of lemonade did he sell?	131 [cups]
7	A watch gets one second slower every minute. After the watch is set to the correct time, how many minutes will it be until the watch is a full minute behind the correct time?	60 [minute]
8	The sum of the ages of Anne and Mary is 36 years. What will be the sum of the ages of Anne and Mary in twelve years?	60 [years]
9	How many ways can you choose 2 different flavors of ice cream from 5 choices, if the order of choosing does not matter?	10 [ways]
10	One doughnut costs 73 cents, but if you buy a box with a dozen doughnuts, it only costs 7 dollars and 65 cents. How much, in dollars, do you save by buying the box of doughnuts instead of 12 individual doughnuts?	[$] 1.11

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COLLEGE KNOWLEDGE BOWL ROUND #3 – SET 3

#	Problem	Answer
1	Pam is reading a book that has 108 pages. If she reads 9 pages a day, how many days will it take her to finish the book?	12 [days]
2	How many faces does a cube have?	6 [faces]
3	Given that today is Monday, what day will it be 3 days AFTER the day after tomorrow?	Saturday
4	Every morning Louise has three pancakes for breakfast. How many pancakes will Louise eat for breakfast in 5 days?	15 [pancakes]
5	A hip-hop rapper always sings 52 words a minute. How many words does he sing if he sings for two minutes?	104 [words]
6	A square has an area of 16 square centimeters. What is the number of centimeters in its perimeter?	16 [units]
7	How many sides does a dodecagon have?	12 [sides]
8	In how many years after 2014 will there be a year with the digits of 2014 reversed?	2088 [years]
9	What is the least common multiple of 4, 6, and 9?	36
10	Grace buys a new outfit consisting of a hat, a shirt, and a skirt. The shirt costs twice as much as the hat and the same as the skirt. If she pays a total of 25 dollars, how many dollars does the skirt cost?	10 [dollars]

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COLLEGE KNOWLEDGE BOWL ROUND #4 – SET 4

#	Problem	Answer
1	Tom paid four dollars for eight bananas. How many dollars would he pay for twelve bananas?	[$] 6
2	How many prime numbers are greater than 12 but less than 30?	5 [primes]
3	How many minutes have passed between the times of 4:38 PM and 5:24 PM the same day?	46 [minutes]
4	Chris has nine quarters and eighteen nickels. How many CENTS does Chris have?	315 [cents] do not accept "3 dollars & 15 cents"
5	Barbara is solving math problems. How many SECONDS will it take her to solve 61 problems if she takes 9 seconds to solve one math problem?	549 [seconds]
6	Kay listens to music for 10 hours a day while Jay listens to music for 1 hour a day. In a week, how many more hours does Kay listen to music than Jay?	63 [hours]
7	How many counting numbers are there from 3 through 62, including 3 and 62?	60 [numbers]
8	What is the area in square units of a triangle whose base is 19 units and whose height is 4 units?	38 [square units]
9	Julio hits twenty percent of the pitches thrown to him during batting practice. How many pitches will he hit if 60 pitches are thrown?	12 [pitches]
10	Jimmy swims on January third and every third day after that. He plays basketball on January fourth and every fourth day after that. In the first 24 days of January, how many days does Jimmy swim and play basketball on the same day?	2 [days]

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COLLEGE KNOWLEDGE BOWL ROUND #5 – SET 5

#	Problem	Answer
1	It took Biff's family 3 hours and 30 minutes to drive to Disneyland. If they started at 6:30 AM, what time did they arrive?	10:00 AM
2	What is the TEN THOUSANDS digit in the number "three one four one five nine two"?	4
3	Amy has 14 apples. If she shares the apples evenly among herself and six of her friends, how many apples should each person get?	2 [apples]
4	How many more SECONDS are in a leap year than in a regular year?	86400 [seconds]
5	Glenn is playing a carnival game where he is required to hit targets with a water gun. How many targets can he hit in a 3-minute game if he can hit 42 targets per minute?	126 [targets]
6	Nick left his house at 7 AM. He got to the store in 3 minutes. He spent 12 minutes inside the store, and walked back home in 2 minutes. What time did he get back home?	7:17 AM
7	While on vacation, Janie took 340 pictures. If three-fifths of the pictures are blurry, how many of the pictures are NOT blurry?	136 [pictures]
8	Spiderman is saving people in the city when Mary Jane calls and needs help 20 miles away. If Spiderman can web-swing at 60 miles per hour, how many MINUTES will it take Spiderman to reach Mary Jane?	20 [minutes]
9	How many ounces are in 7 and a half pounds?	120 [ounces]
10	Zandra makes a list of the first 30 square numbers, in order of increasing size. What is the third number on her list that is greater than 100?	169

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COLLEGE KNOWLEDGE BOWL ROUND #6 – SET 6

#	Problem	Answer
1	Biff and Eho each have the same amount of money. Biff gave Eho twelve dollars. How many more dollars does Eho have than Biff?	24 [dollars]
2	How many feet are in 3 yards?	9 [feet]
3	Apples are on sale for 27 cents apiece. In dollars, how much would it cost to buy 13 apples?	[$] 3.51
4	A spinner has the colors red, blue, green, and yellow, with an equal probability of the spinner landing on any color. What is the probability that the spinner does NOT land on red? Answer as a reduced fraction.	Three-fourths OR three over 4
5	Camille wrote a story with 872 words in it. How many minutes did she take to write the story if she wrote 4 words a minute, on average?	218 [minutes]
6	Two snails are racing, starting from the same point. One snail travels at one centimeter per minute, and the other travels twice as fast. How many minutes have passed when the second snail is 7 centimeters ahead of the first snail?	7 [minutes]
7	If a car is going 12 miles per hour, how many miles has it gone after thirteen point five hours?	162 [miles]
8	If the Fourth of July happened 34 days ago, what is the current date? Give the name of the month and the number of the day.	August 7[th]
9	An unknown angle plus 35 degrees is equal to a right angle. What is the degree measure of the unknown angle?	55 [degrees]
10	When you add the digits of a number together, the sum you get is called the "digital sum". How many counting numbers less than 200 have a digital sum of 10?	19 [numbers]

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COLLEGE KNOWLEDGE BOWL ROUND – EXTRA

#	Problem	Answer
1	Spelunky is about to open up a box that contains one item. The items that could possibly be in the box are a glove, a shoe, a cape, a teleporter, or a jetpack. If the selection is random and each item has equal probability, what is the probability that he gets a cape?	one-fifth, OR 1 over 5
2	If a popular new video on YouTube gets 1841 new "likes" daily, how many "likes" will it gain in a week?	12887 [likes]
3	How many cups are in 21 quarts of lemonade?	84 [cups]

"Math is Cool" Championships – 2013-14

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5th Grade – March 7, 2014

Mental Math Contest

Mental Math – 30 sec per question

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

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

#	Problem
1	What is the sum of fifteen and seventeen?
2	At Biff and Eho's farm they have 5 chickens and 9 cows. How many animal feet are on Biff and Eho's farm?
3	The timer on Marcy's microwave only accepts seconds for the time. The recipe calls for 8 minutes and 45 seconds. How many seconds should be entered on Marcy's microwave?
4	During toy production, 3 out of every 500 toys made are defective. If twenty-five thousand toys are made, how many toys will be defective?
5	Tara got a score of 17 on a quiz worth 20 points. Her score was what percentage of the total?
6	Sarah writes out counting numbers with words, starting with 1 (which she writes O-N-E). If Sarah spells correctly, what is the smallest number she will write that contains the letter "A"?
7	It is 4:30 p.m. on March 7th . The minute hand on the clock turns around 40 times. What **DATE** is it?
8	In cubic inches, how much greater is the volume of a cube of side length 3 inches than that of a cube of side length 2 inches?

"Math is Cool" Championships -- 2013-14

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

You may NOT be seated next to anyone from your school. If you are MOVE NOW to avoid being disqualified! When it is time to begin, the proctor will read the first question twice. You may not do any writing or talking while arriving at a solution. Once you have a solution, record it on the sheet in front of you. ***You may not change or cross out answers once you have written an answer down. If there are eraser marks, write-overs, or crossed-out answers, they will be marked wrong.*** *Once all students have laid their pencils on the desk, another question will be asked. If a student doesn't lay his/her pencil down, the maximum wait time is 30 seconds after completion of the second reading of the question before another question is asked. You may continue to work on a problem while the next question is being read. The value of each question is a one or zero. Each student will be asked the same eight questions. Individual scores used to determine individual placing will be determined by the sum of the Mental Math score and the Individual Test score for each individual. In addition, the top three Mental Math scores from one team will be totaled and doubled and will contribute to 25% of the team score.*

	Answer	1 or 0	1 or 0
1	32		
2	46 [feet]		
3	525 [seconds]		
4	150 [toys]		
5	85 [percent]		
6	One thousand or 1000		
7	March 9th		
8	19 [cubic inches]		

"Math is Cool" Masters – 2013-14

March 7, 2014

STUDENT NAME: _____ **School Name:** _____

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

5th Grade Individual Contest – Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	384		
2	948,566		
3	31 [cats]		
4	3 [sides]		
5	6.861		
6	2 [pieces of candy]		
7	21 [quarters]		
8	17		
9	48 [pets]		
10	D		
11	6 [cookies]		
12	24		
13	4 [pencils]		
14	5		
15	32 [inches]		
1-15 TOTAL:			

	Answer	1 or 0	1 or 0
16	CBA		
17	51 [apples]		
18	230 [steps]		
19	16 [bags of jellybeans]		
20	2041		
21	36 [years old]		
22	14 [dice]		
23	3		
24	20 [cents] (do not accept [$].20)		
25	36 [tomatoes]		
26	$1\frac{13}{60}$		
27	1:21 PM		
28	7 [days]		
29	5 [%]		
30	10 [squares]		
16-30 TOTAL:			

	Answer	1 or 0	1 or 0
31	180 [problems]		
32	[#] 2		
33	15 and 111 [any order]		
34	[$] 1510		
35	50 [inches]		
36	300 [meters]		
37	672 [seconds]		
38	119 [cents]		
39	100 [minutes]		
40	30 [numbers]		
31-40 TOTAL:			

5th Grade

"Math is Cool" Championships – 2013-14

5th Grade – March 7, 2014

School Name____ _____Team #_____

Proctor Name_____Room #_____Division: _____

Final Score: KEY

First Score

(out of 20)

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

This test is the only test where you will be penalized for incorrect responses. You will receive 2 points for a correct letter response, 0 points for leaving it blank and -1 point for an incorrect response. When you are prompted to begin, tear off the colored sheet, pass out a copy of the test to each team member, and begin testing. ***Since this is a multiple choice test, ONLY a letter response should be listed as an answer on the answer sheet.***

Correct responses are worth 2 points, incorrect responses are worth -1 point and no response is 0 points.

DO NOT WRITE IN SHADED REGIONS

	Answer	-1, 0 or 2	-1, 0 or 2
1	B		
2	E (3060)		
3	C		
4	B		
5	C		
6	B		
7	A		
8	A		
9	D		
10	B		

"Math is Cool" Championships – 2013-14

5th Grade – March 7, 2014

School Name_____Team #_____

Proctor Name_____Room #_____Div: _____

Final Score: KEY

First Score

(out of 10)

Team Contest – Score Sheet – 15 minutes – 30% of team score

When you are prompted to begin, tear off the colored sheet and give a copy of the test to each of your team members and begin testing. Each problem is scored as a 1 or 0. Record all answers on the colored answer sheet.

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	135 [degrees]		
2	10 [blue marbles]		
3	5:22 PM		
4	7 [dimes]		
5	3 [ounces]		
6	136 [pages]		
7	9 [minutes]		
8	492		
9	Nov. 3 OR Nov 3rd OR 11/3		
10	[$] 54		

"Math is Cool" Championships – 2013-14

Sponsored by:

5th Grade – March 7, 2014

Relay Contest

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 smallest counting number greater than 1?	2
Person 2	Take TNYWG and add it to 100.	102
Person 3	Subtract TNYWG from 2014.	1912
Person 4	Divide TNYWG by 2.	956
	Relay #1	Answer
Person 1	What is the smallest two-digit ODD counting number?	11
Person 2	Take TNYWG and subtract it from 316.	305
Person 3	What is the remainder when you divide TNYWG by 7?	4
Person 4	How many inches are in TNYWG yards?	144 [inches]
	Relay #2	Answer
Person 1	In the following sequence, each number is twice the previous number. What is the next number in the sequence 1, 2, 4, __?	8
Person 2	What is the Lowest Common Multiple of TNYWG and the number that is one less than TNYWG?	56
Person 3	Add TNYWG to the smallest square number larger than TNYWG.	120
Person 4	A factor of TNYWG is a counting number that will divide into TNYWG leaving no remainder. Find the difference between TNYWG and the sum of all the factors of 30.	48

"Math is Cool" Championships -- 2013-14

KEY

5th Grade – March 7, 2014

School:_____Team #_____

Proctor: _____ Room #_____Div _____

PRACTICE RELAY

Answer for person # 1	Answer for person # 2	Answer for person # 3	Answer for person # 4
2	**102**	**1912**	**956**
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
11	**305**	**4**	**144 [in]**
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
8	**56**	**120**	**48**
1 or 0	1 or 0	1 or 0	2 or 0