"Math is Cool" Masters-1999-00
Sponsored by: Wilbert Precast Inc.
5th Grade -April 29, 2000
Individual Contest

Express all answers as reduced fractions unless stated otherwise.
Leave answers in terms of π where applicable.
Do not round any answers unless stated otherwise.
Record all answers on the green cover sheet.

1.   Evaluate; 2,390 + 1,781

2.   Evaluate 32,143-8,998

3.   Find the product of 17 and 23

4.   What is the remainder of 234,567 ÷ 3

5.   True or False 1 + 20 + 3 + 40 = 10 + 2 + 30 + 4

6.   If my chicken laid 6 eggs a week, how many weeks would it take for my chicken to lay 14 dozen eggs?

7.   Evaluate: 12.345 - 2.34

8.   My family reads 12 math books a day, how many math books will we read in a week?

9.   What is the sum of the factors of 6?

10.   How many inches are in one yard?

11.   How many seconds are in two hours?

12.   Find the missing number: 2 + 3 + 4 + 5 + 6 + ____ = 10 + 11 + 12 + 13

13.   How many cups are in a gallon?

14. Is the product of all numbers positive, negative, or neither?

15. Dillon and Sarah hiked 5 miles in one hour and fifteen minutes. What was their rate in miles per hour?

16. What is the least number of sides a polygon can have?

17. Silas was 22 inches tall at the end of his freshman year. Over the summer he ate all of his vegetables and started his sophomore year five times taller than when he ended his freshman year. How many inches did he grow over the summer?

18. Yes or No: Is a circle a polygon?

19. What is the probability of rolling a sum of six when you roll two six sided dice?

20. The distance from Ayton to Beevil is 84 miles. The distance from Beevil to Ceeburg is 68 miles. What is the greatest possible distance, in miles, from Ayton to Ceeburg?

21. Eric needs 35 more dollars than he has to buy a new calculator. If the calculator cost $80, and he earns $10 a week, how much money, in dollars, does he have?

22. Using only pennies, nickels, dimes and quarters, what is the least number of coins needed to make $8.42?

23. One of the Agents of Mathness can lift one refrigerator. Combined, two Agents can lift 4 refrigerators. Combined, three Agents can lift 9 refrigerators. Combined, how many refrigerators can four Agents lift?

24. If 16 tripsoids weigh 1 ton, how many pounds does 1 tripsoid weigh?

25. I am thinking of two numbers. The first number is 30 less than twice the second number. If the second number is 16, what is the sum of these two numbers?

26. It takes 3 grams of iodine to make 20 oz of water potable. If there are 16 oz in a pound, how many grams of iodine will make 5 pounds of water potable?

27. A six-foot pillar weighs 1 ton. How many pounds does a 10 yard pillar weigh?

28. The product of 11 positive integers is 20. What is the smallest possible sum of these 11 integers?

29. What time is it 1000 minutes before 3:15 p.m.?

30. A parallelogram has a 16 inch side and 12 inch side. What is the sum of the other two sides, in inches?

31. How many ways can you rearrange the letters in "ALGEBRA"?

32. A boy ran up a hill at $1\frac{1}{2}$ mph and came down the hill at $4\frac{1}{2}$ mph. The trip took him 6 hours. How many miles is it to the top of the hill?

33. Drew is playing a dice game with the following rules. One 6 sided die is tossed each turn. If the number that appears is not a factor of 12 then Drew is paid one dollar. If the number that appears is a factor of 6 then Drew pays 50¢. If the number does not fit either category no money is exchanged. If the Drew plays this game 144 times, how much money, in dollars, should he expect to lose?

34. Mike's pen can write 150 pages before it runs out. If pens are sold in packages of 5 for $1.89, including tax, how many pages can Mike write if he buys $5 worth of pens?

35. A password is created by randomly selecting 3 digits to form a 3-digit number. How many passwords are there?

36. A woodchuck chucks 3 chords of wood per hour for 2 days. A squirrel can chuck wood at half that rate. In the same amount of time, how much wood could a squirrel chuck if a squirrel could chuck wood?

37. What is the 200th digit in the number .123451234512345…

38. What is the perimeter of a rectangle whose area is 32 and whose length is twice its width?

39. What is the probability of getting at least two heads when you flip a fair coin 3 times?

40. The ratio of the perimeters of two similar polygons is 2:3. What is the ratio of their areas?

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5th Grade -April 29, 2000
Team Multiple Choice Contest

1. If a>b>0 then

    a) $\dfrac{1}{a} = \dfrac{1}{b}$ b) $\dfrac{1}{b} > \dfrac{1}{a}$ c) $\dfrac{1}{b} < \dfrac{1}{a}$ d) $\dfrac{1}{b} < 0$ e) $\dfrac{1}{a} < 0$

_____

2. For every three bananas Joel eats, Steve eats 2 apples. If Steve eats 372 apples in 24 hours, how many bananas does Joel eat?
    A)301   B)558   C) 559   D) 702   E) Answer not given

_____

3. A grocery store lowered the price of bananas from 45¢ to 30¢. For $7, how many more bananas could you buy now than before?
    A)8   B)15   C)230   D)46   E) Answer not given

_____

4. Two whole numbers differ by 1. If one number has two digits and the other number has three digits, what is the sum of the two numbers?
    A)198   B) 199   C)200   D)201   E) Answer not given

_____

5. What is the product of the quotient and remainder when 167 is divided by 9?
    A)45   B)90   C)162   D)835   E) Answer not given

_____

6. 340 people want to ride a roller coaster. If the roller coaster can haul 47 people a trip, how many trips will the roller coaster need to make?
    A)5   B)6   C)6   D)7   E) Answer not given

_____

7. In the words "Math is Cool", what is the ratio of vowels to letters?
    A)2:5   B) 2:3   C)5:2   D)3:2   E) Answer not given

_____

8. If 2 dogs weigh as much as 15 chickens and 2 chickens weigh as much as 1 cat, how many cats weigh as much as 4 dogs?
    A)15   B) 7   C) 22   D) 44   E) Answer not given

_____

9. How many edges does a cube have?
    A) 6   B) 8   C) 10   D) 12   E) Answer not given

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5th Grade -April 29, 2000
Team Contest

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1.   Farmer Sampson is making a four-sided pen for his goat, using 80 yards of fence. What is the largest possible area of his pen?

2.   What is the largest square number less than 400?

3.   What is the probability that if a page is selected out of a 350 page textbook, it will be greater than 84 and less than 155?

4.   For every three bananas Joel eats, Steve eats two apples. If Steve eats 372 apples in 24 hours, how many bananas does Joel eat?

5.   The sum of three consecutive integers is 48. What is their mean?

6.   My favorite number is 4 times bigger than my second favorite number. My second favorite number is 12 less than my favorite number. What is my favorite number?

7.   If the alphabet is written consecutively over and over. Which letter would be the 105th letter in the sequence?

8.   A math team has a ratio of 5:4 of girls to boys. If there are 18 members on the math team, how many are boys?

9.   Evaluate 2 + 4 + 6 + ... + 14 + 16

10. The largest odd number smaller than 420 is divided by 9. What is the remainder of this division?

5Relay#1
Person#1
What is the sum of 11 and 13?

5Relay#1
Person#2
What is the difference between 234 and TNYWG?

5Relay#1
Person#3
What is the remainder of TNYWG divided by 9?

5Relay#1
Person#4
What is the perimeter of a square with side length TNYWG?

5Relay #2
Person#1
What is the units digit of the product of 234 and 17 ?

5Relay#2
Person#2
What is the difference between the number of inches in two feet and TNYWG?

5Relay#2
Person#3
Divide the TNYWG by the number of ounces in a half pound.

5Relay#2
Person#4
What is the sum of the number of feet on TNYWG sheep and the number of feet in two yards?

"Math is Cool" Masters-1999-00
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5th Grade -April 29, 2000
Mental Math Contest

Express all answers as reduced fractions in terms of radicals and π, where applicable, unless otherwise instructed.

Person #1
1.   What is the sum of 341 and 27?
2.   What is the perimeter of a square with a side of length 9?
3.   How many sides does a hexagon have?
4.   How many feet are in a mile?

Person #2
1.   What is the quotient of 54 and 9?
2.   A house is 96 inches tall.   How tall is the house in feet?
3.   How many cups are in 3 gallon?
4.   You drove 30 miles from your house to Grandma's house. You then drove 20 miles to your Uncle's house. What is the shortest possible distance back to your house?

Person#3
1.   What is the product of 18 and 3?
2.   Your flight is scheduled to leave Spokane to "Math is Cool" town at 1:00 p.m.. The airline requests that you come to the airport an hour before the flight is scheduled to leave. You arrived at the airport 12 minutes before the airline requested you to arrive.   What time did you get to the airport?
3.   What is one-fifth of 45?
4.   Two different whole numbers are less than 10. What is the largest possible sum of these two numbers?

Person#4
1.   What is the difference between 421 and 199?
2.   How many pounds does a 64 ounce math book weigh?
3.   What is the area of a triangle with a base of length 12 and height of 7?
4.   What is the only even prime number?

"Math is Cool" Masters-1999-00
Sponsored by: Wilbert Precast Inc.
and ZAK DESIGNS - SPOKANE, WA
5th & 6th Grade - April 29, 2000

	College Knowledge Bowl Questions #1	
1	What is the smallest 3-digit prime number?	101
2	What is the sum of the reduced numerator and denominator of $\dfrac{500}{350}$?	17
3	When I divide a certain number by 8, the quotient is 13 and the remainder is 2. What is the number?	106
4	How many diagonals can be drawn in a convex pentagon?	5
5	What is the average of four 8's?	8
6	Beth read page 100 and 200 and all the pages in between. How many pages did she read?	101
7	What is the number of days in August minus the number of days in April?	1
	Number **8** is an extra question. Only use it if needed.	
8	Dillon bought a special rock that cost $3.20. The rock weighed one pound. How much, in cents, per ounce did he pay for the rock?	20(¢)

"Math is Cool" Masters-1999-00
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5th & 6th Grade - April 29, 2000

College Knowledge Bowl Questions #2

1	Evan and Sarah have been best friends for 5 and one-half years. How many months have they been best friends?	66(months)
2	In what month does the 160th day of the year occur?	June
3	Krista always gets 5 out of every 8 questions right on math competition tests. How many questions would she get correct if the test had 120 questions?	75(questions)
4	How many prime numbers are between 18 and 38?	5
5	How many 79¢ widgets can you buy with $5.00?	6
6	What is the sum of the first 7 positive odd numbers?	49
7	What is the sum of all the two digit prime numbers that begin with 3?	68
Number **8** is an extra question. Only use it if needed.		
8	Evaluate 5A +3B, when A=2 and B=3. Read as "Evaluate five times A plus 3 times B...."	19

College Knowledge Bowl Questions #3

1	If one can of paint covers 30 square feet, how many cans of paint do I need to cover 120 square feet?	4(cans)
2	If three scoops of powdered Gatorade mix is used to make one quart of drink, how many scoops of powdered Gatorade mix are needed to make one and a half gallons of drink?	18(scoops)
3	What geometric shape contains the most area for the least amount of perimeter?	Circle
4	If a frog chirps 20 times per minute, how many times will 4 frogs chirp in 3 minutes?	240
5	How many sets of parallel sides does a regular hexagon have?	3
6	Joe counted 132 paws in a field filled with dogs. How many dogs were in the field?	33
7	How many ounces are in 4 pounds?	64
Number **8** is an extra question. Only use it if needed.		
8	Find the square root of $3^2 + 4^2$.	5

"Math is Cool" Masters -- 1999-00
5th grade - April 29, 2000

School Name_____Team #_____

Proctor Name_____Room #_____

Key

Full Name:_____

1st Score

Individual Contest - Score Sheet
DO NOT WRITE IN SHADED REGIONS

Out of 40

	Answer	1 or 0	1 or 0			Answer	1 or 0	1 or 0
1	4,171				21	($)45		
2	23,145				22	37(coins)		
3	391				23	16(refrig)		
4	0				24	125 (pounds)		
5	F				25	18		
6	28(weeks)				26	12 (grams)		
7	10.005				27	10,000 (pounds)		
8	84(books)				28	17		
9	12				29	10:35p.m.		
10	36(in)				30	28 (inches)		
11	7200(sec)				31	2520(ways)		
12	26				32	4.5 or 4 $\frac{1}{2}$ (miles)		
13	16(cups)				33	$24		
14	Neither				34	1500(pages)		
15	4(mph)				35	1000 or 900(passwords)		
16	3				36	72 chords		
17	88(in)				37	5		
18	No				38	24(units)		
19	5/36				39	1/2		
20	152(miles)				40	4:9 or 4/9		

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School Name_____Team #_____

Proctor Name_____Room #_____

Team Multiple Choice Contest-Score Sheet

Correct responses are worth 2 points, incorrect responses are worth -1 point and no response is 0 points. Answers need to be recorded letters.

1st Score

Out of 18

DO NOT WRITE IN SHADED REGIONS

	Answer	-1, 0 or 2	-1, 0 or 2
1	B		
2	B		
3	A		
4	B		
5	B		
6	E Ans is 60		
7	A		
8	A		
9	D		

"Math is Cool" Masters -- 1999-00
5th grade - April 29, 2000

School Name_____Team #_____

Proctor Name_____Room #_____

1st Score

Out of 10

Team Contest-Score Sheet

DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0
1	400 (square yards)		
2	361		
3	1/5		
4	558(bananas)		
5	16		
6	16		
7	A		
8	8(boys)		
9	72		
10	5		

"Math is Cool" Masters -- 1999-00
5th grade - April 29, 2000

School Name_____Team #_____

Proctor Name_____Room #_____

Mental Math - Score Sheet

1	368
2	36
3	6
4	5280

1	6
2	8
3	48
4	10(miles)

1	54
2	11:48a.m.
3	9
4	17

1	222
2	4(lbs)
3	42
4	2

Relay Contest - Score Sheet

Answer for relay #1

12

Answer for relay #2

14