

"Math is Cool" Championships -- 1995-6

Individual Test, Grade 6

Express all answers as reduced fractions in terms of radicals

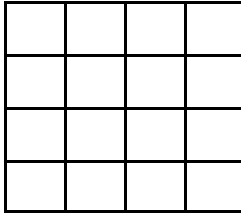
1. Evaluate: $14 \div 2 + 5 \times 3$
2. Reduce the fraction $\frac{240}{448}$
3. What is the first prime number greater than 19?
4. What is the perimeter of a rectangle with sides of 4 and 13?
5. Evaluate: $\frac{1}{3} + \frac{3}{8} + \frac{1}{6}$
6. Evaluate: $\frac{3}{4} \times \frac{1}{2} \div \frac{9}{16}$
7. Evaluate: $2.6 + 12.34 + .523 + 312.7$ Express your answer as a decimal.
8. What is 65% of 42? Express your answer as a decimal.
9. Evaluate: $2.6 \div 1.6$ Express your answer as a decimal.
10. If Tom drives his car at 35 miles per hour and travels 150 miles, how long did it take him? Express your answer as a mixed number.
11. What is the area of a triangle with a base of 18 and a height of 13?
12. If the difference between two numbers is 12, and their sum is 22, what are the two numbers?
13. What is the least common multiple of 18 and 78?
14. What is the area of a circle with radius 9?
15. What is the circumference of a circle with radius 9?

16. A math team of 6 people wins first place, and all members shake hands. If each person shakes hands with each other person exactly once, how many handshakes occur?
17. If triangle ABC has angle $A=45^\circ$, and angle $B=75^\circ$, what is the measure of angle C?
18. If the difference between two numbers is 34, and their sum is 114, what are the two numbers?
19. What is the probability of rolling a sum of five on two dice?
20. How many ways are there to choose a three person committee from a group of five?
21. Simplify: $5(x + 7) - 2(4 - x)$
22. In a certain class, Lori has received scores of 92, 85, 90, 91, and 87 on her tests so far. If there is one test left, what must she receive on it to receive a 90 average score?
23. What is the probability of getting one head and one tail in two flips of a coin?
24. Dan has 17 coins, all dimes and nickels, which add up to \$1.40. How many dimes does he have?
25. In a set of three consecutive numbers, the highest is 15 less than twice the lowest. What is the middle number?
26. Evaluate when $x=5$: $3x^2 + 14x - 12$
27. Solve for x : $3(x - 6) = 18$
28. What is the length of a diagonal of a rectangle with sides of 8 and 6?
29. In rectangular coordinates, what is the distance between the point (3,4) and the point (8,16)?
30. What is the slope of a line that passes through the points (3,4) and (8,16)?

"Math is Cool" Championships -- 1996

Team Test, Grade 6

Express all answers as reduced fractions in terms of radicals

1. Nineteen soldiers, numbered 1 through 19, stood in a circle in clockwise numerical order, all facing the center. They began to count out loud in clockwise order: the first soldier called out the number 1, the second called out 2; and each soldier then called out the number 1 more than the number called to his right. What was the number of the soldier who called out the number 1996?
2. How many squares? Hint: Answer is not 16. 
3. A positive integer such as 4334 is a palindrome if it reads the same forwards or backwards. What is the only prime palindrome with an even number of digits?
4. List the next two numbers in the sequence:
100, 2, 17, 95, 3, 17, 90, 4, 17, 85, __, __
5. How many two digit numbers contain one and only one 3?
6. How many one foot by two foot tiles would be needed to cover the floor of a room 11 feet by 12 feet?
7. How many prime numbers are there between 4 and 74?
8. A person drives for $3\frac{1}{2}$ hours at 58 miles per hour. How far does he travel?
9. If there are 6 competitors in a given math contest, in how many ways can first, second, and third place trophies be awarded.
10. Find the sum: $3 + 6 + 9 + \dots + 21 + 24$

Relay #1

Person#1

Given a triangle with base of 6 and a height of 5, what is the area?

Relay#1

Person#2

What is the largest prime number less than TNYWG?

Relay#1

Person#3

Reduce the fraction $\frac{\text{TNYWG}}{78}$

What is the sum of the reduced numerator and denominator?

Relay#1

Person#4

What is the sum of the first TNYWG prime numbers?

Relay#2

Person#1

What is 15 times 17 divide by 5?

Relay#2

Person#2

What is TNYWG minus the sum $1 + 7 + 10 + 12$?

Relay#2

Person#3

What is the remainder when TNYWG is divide by 19, plus the remainder when 1019 is divided by 11?

Relay#2

Person#4

What is the perimeter of a square with a side of length equal to TNYWG?

"Math is Cool" Championships -- 1996

Mental Math, Grade 6

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

1. What is 6 times 6?
2. What is the perimeter of a square with side length 4?
3. What is one-fifth the sum of 22 and 18?
4. What is the sum of one-half and one-third?
5. What is the area of a circle of radius 4?
6. What do you get if you multiply the sum of 5 and 7 by 3?
7. What is the perimeter of an equilateral triangle with side length 9?
8. What is one-third of the sum of 13 and 23?
9. What is the sum of the interior angles of a triangle, in degrees?
10. What is the sum of one-third and one-fourth?
11. What is the result when you multiply 3 and 7, then add 5?
12. What is 3 times the sum of 12 and 4?
13. What is the area of a square of side length 7?
14. What is the sum of the interior angles of a quadrilateral, in degrees?
15. What is the difference between one-half and one-third?
16. What is 20 percent of 15?

"Math Is Cool" Championships -- 1995-6
6th Grade

College Knowledge Bowl Questions #1

1. How many prime numbers are between 10 and 20?

Answer: 4

2. What is the remainder when 127 is divided by 2?

Answer: 1

3. What is the units digit of the product of 25 and 17?

Answer: 5

4. How many ways can you arrange four different books on a shelf?

Answer: 24

5. Find the value of x for the equation $7x - 2 = 11$.

Answer: $13/7$

6. What is 20% of 210?

Answer: 42

7. What is the sum of $1/3$, $1/4$ and $1/5$?

Answer: $47/60$

"Math Is Cool" Championships -- 1995-6
6th Grade

College Knowledge Bowl Questions #2

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1. You have 3 cats, 4 dogs, 5 chickens and 3 eagles in your house. How many feet are in your house, including your feet?

Answer: 46

2. How many ways can the letters in the word "MATH" be arranged?

Answer: 24

3. Find the sum of $11 + 12 + 13 + 14 + 15$.

Answer: 65

4. How many diagonals can be drawn in a convex pentagon?

Answer: 5

5. What is the first prime number bigger than 90?

Answer: 97

6. What is the units digit of $10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$?

Answer: 0

7. If there are pigs and chickens in a field, and there is a total of 10 heads and 32 feet, how many chickens are in the field?

Answer: 4

"Math Is Cool" Championships -- 1995-6

6th Grade

College Knowledge Bowl Questions #3

1. In how many ways can the letters in the word "GREEK" be arranged?

Answer: 60

2. Biff pushes Eho up a 115 foot hill. Biff pushes Eho up the hill 30 feet each day and Eho slides down the hill 7 feet each night. How many days will it take Biff to get Eho to the top of the hill?

Answer: 5

3. What is the value of x for the equation $5x - 7 = 2$

Answer: $9/5$

4. If two angles in a triangle are 21° and 121° , what is the measure of the third angle?

Answer: 38°

5. You have \$4.10 in your pocket consisting of just dimes and quarters. How many quarters are in your pocket?

Answer: 12

6. Evaluate when $x=2$; $3x^2-2x+3$

Answer: 11

7. What is the sum of the numerator and the denominator after you reduce the fraction 286 divided by 572 ?

Answer: 3

"Math is Cool" Championships -- 1995-6

Individual Test - Score Sheet

Score:

KEY

Full Name: _____ School: _____

DO NOT WRITE IN SHADED REGIONS

Answer			
1.	22		
2.	15/28		
3.	23		
4.	34		
5.	13/24		
6.	2/3		
7.	328.163		
8.	27.3		
9.	1.625		
10.	4 2/7		
11.	117		
12.	5 and 17		
13.	234		
14.	81 π		
15.	18 π		

Answer			
16.	15		
17.	60		
18.	40 and 74		
19.	1/9		
20.	10		
21.	7x + 27		
22.	95		
23.	1/2		
24.	11 dimes (or 11)		
25.	18		
26.	133		
27.	12		
28.	10		
29.	13		
30.	12/5		

"Math Is Cool" Championships -- 1995-6

Team - Score Sheet

Score:

KEY

School: _____ Team #: _____

DO NOT WRITE IN SHADED REGIONS

Answer			
1.	1		
2.	30		
3.	11		
4.	5 and 17		
5.	17		
6.	66		
7.	19		
8.	203		
9.	120		
10.	108		

"Math Is Cool" Championships -- 1995-6

Mental Math - Score Sheet

Score:

KEY

School: _____ Team #: _____

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- A. 1. 36
2. 16
3. 8
4. $\frac{5}{6}$

-
- B. 1. 16π
2. 36
3. 27
4. 12

-
- C. 1. 180E
2. $\frac{7}{12}$
3. 26
4. 48

-
- D. 1. 49
2. 360
3. $\frac{1}{6}$
4. 3

Answer for relay #1

58

Answer for relay #2

36