

# "Math Is Cool" Championships - 1996-97

Individual Contest, Grade 5

January 24, 1997

Express all answers as reduced fractions unless stated.

Leave answers in terms of  $\pi$ .

Do not round any answers unless stated.

1. Biff and Eho depart in opposite directions on a two mile oval track. They are going 6 mph and 2 mph respectively. In how many minutes will they meet?
2. Find the remainder when 782 is divided by 5.
3. Reduce:  $76/114$
4. What is the area of a circle with radius 5?
5. Evaluate:  $\frac{2}{5} + \frac{1}{3} - \frac{1}{15}$
6. Evaluate:  $\frac{3}{8} \times \frac{8}{9} \div \frac{2}{3}$
7. Evaluate:  $2.6 + 3.14 + 2.71828$
8. What is the perimeter of a rectangle with sides 7 and 21?
9. A certain dog Fido, got lost 600 miles from home and walked twenty miles towards home every day. How many days did it take him to get home?
10. What time is it 4 hours and 32 minutes before 1:33 A.M.?
11. A polygon must have at least how many sides?
12. Biff and Eho discovered one day that the sum of their ages was 41 and the difference of their ages was 1. How old is the older person?
13. What is the greatest common factor of 21 and 28?
14. What is the radius of a circle with diameter 12?

15. Evaluate:  $125 \times 23$
16. Evaluate:  $9128 - 7549$
17. Evaluate:  $2347 + 1528$
18. What is the area of a right triangle with legs of length 6 and 20?
19. What is the probability of rolling a sum of 7 on two dice?
20. From a standard deck of 52 playing cards what is the probability of drawing a red king or a seven on the first draw?
21. Evaluate:  $7.568 \times 2.3$
22. What is the units digit of  $238751 \times 2386$ ?
23. What is the first prime number larger than 19?
24. Biff drove his car at 55 mph for 7 hours. How many miles did he go?
25. Eho has a drawer that contains 13 red socks, 17 green socks, 5 purple socks, and 7 blue socks. How many socks must he draw in the morning to be sure he has a matching pair?
26. If triangle  $ABC$  has angle  $A$  equal to  $25^\circ$  and angle  $B$  equal to  $75^\circ$ , what is the measure of angle  $C$ ?
27. In a certain class, Biff has received scores of 92, 90, 87, 98, 82, and 93 on his tests so far. If there is one test left what must he receive on it in order to receive a 90 average score?
28. What is 75% of 200?
29. If a 6 member math team all shake each others hands exactly once, how many hand shakes took place?
30. Biff packs a large boulder up a hill 20 feet everyday. At night while Biff is asleep, Eho pushes the rock back down the hill 5 feet. If the hill is 155 feet long, on what day will Biff get the rock to the top of the hill?

# "Math Is Cool" Championships - 1996-7

Team Contest, Grade 5

January 24, 1997

1. Write .52 as a fraction in reduced form.
2. If the sum of the ages of a family of six is 183 years, what will the sum of their ages be in 15 years?
3. How many two digit prime numbers are there that begin with the number 4?
4. Jina bought a gift for \$56.00. The price with tax was \$59.92. What is the % of sales tax that Jina paid?
5. Lisa is using a 100 foot rope to enclose an area, which shape will have the maximum area? Square, Triangle, Circle, Hexagon, Pentagon, or Rectangle. (Write the name of the geometric shape.)
6. Biff is 250 cm tall. One day while walking through a forest of large cedar trees 73 miles from a small town called Scobie, Jina threw a cone onto Biff's head. The cone weighed 35 grams and Jina was hiding 100 meters up in a tree which had a diameter of 12 feet. The impact was so great that it left Biff only 75% of his original height. How tall is Biff now?
7. If Lisa counted by 7's starting with 2, list the numbers between 150 and 175 that she would count. Example: 2, 9, 16...
8. In a small high school of 20 students, 6 students are taking algebra, 8 are taking geometry and 3 are taking both. How many students are not taking either?
9. Eho has \$3.15 in his pocket in nickels, dimes and quarters. Eho has 1 more dime than quarters, and twice the number of nickels is 1 more than the number of dimes. How many quarters does he have?
10. Find the sum:  $1 + 2 + 3 + \dots + 34 + 35$ .

Practice relay  
Person#1  
5 + 13

Practice relay  
Person#2  
TNYWG/2

Practice relay  
Person#3  
TNYWG X 8

Practice relay  
Person#4  
TNYWG / 3

Relay #1  
Person#1  
8 x 7

Relay#1  
Person#2  
TNYWG - 20

Relay#1  
Person#3  
TNYWG / 6

Relay#1  
Person#4  
TNYWG + 1

Relay#2  
Person#1  
The units digit of 25 x 33

Relay#2  
Person#2  
TNYWG x TNYWG

Relay#2  
Person#3  
Sum the digits of TNYWG

Relay#2  
Person#4  
If TNYWG is prime, add 1. Otherwise, subtract 1.

# "Math Is Cool" Championships -- 1996-7

5th Grade - January 24, 1997

## Mental Math

Express all answers as reduced fractions, where applicable, unless otherwise instructed.

### Person #1

1. What is 8 times 7?
2. What is the sum of the first three prime numbers?
3. What is one-fifth of 30?
4. What is the sum of one-third and one-fifth?

### Person #2

1. What is  $9 \times 11$ ?
2. What is one-third of 42?
3. What is  $11,000 + 1,100 + 11$ ? (Read as: What is eleven thousand plus eleven hundred plus eleven.)
4. What is the perimeter of a square with sides of length 12?

### Person #3

1. What is  $7 \times 6$ ?
2. What is one-eighth of 56?
3. What is  $10 - 9 + 8 - 7 + 6 - 5$ ?
4. How many minutes have elapsed between 3:00 a.m and 5:23 a.m?

### Person #4

1. What is  $6 \times 9$ ?
2. What is the area of a triangle with base 4 and height 12?
3. What is  $1,000 + 100 + 10 + 1$ ?
4. How many inches are in 7 feet?

**"Math Is Cool" Championships -- 1996-7**  
**5th Grade - January 24, 1997**  
College Knowledge Bowl Questions #1

---

1. Lisa's 2208 quarters are worth what in dollars?

Answer: 552 dollars or 552

---

2. In Eho's collection of 14 grasshoppers, each grasshopper has 7 legs. What is the total number of legs?

Answer: 98 legs or 98

---

3. What is 1997 rounded to the nearest ten?

Answer: 2000

---

4. What is the sum of the reduced numerator and denominator of  $12 / 24$ ?

Answer: 3

---

5. What is  $12 \times 13$ ?

Answer: 156

---

6. If a clown can hold 17 balloons, how many balloons can 15 clowns hold?

Answer: 255 balloons or 255

---

7. What is probability rolling a sum of 5 with two six sided dice?

Answer:  $1 / 9$  or 1 in 9 or 1 out of 9

---

**"Math Is Cool" Championships -- 1996-7**  
**5th Grade - January 24, 1997**  
College Knowledge Bowl Questions #2

---

1. How many sides does a pentagon have?

Answer: 5

---

2. If today is Wednesday, what day of the week will 22 days from now be?

Answer: Thursday

---

3. How many ways can you rearrange the letters in "HOPPER"?

Answer: 360

---

4. Is the product of 5 odd numbers odd, even or neither?

Answer: odd

---

5. What is  $1 \times 2 \times 3 \times 4 \times 5$ ?

Answer: 120

---

6. What is five million, five hundred fifty five thousand, five hundred and fifty five divided by five?

Answer: 1,111,111

---

7. You went to sleep at 8:23 p.m. and woke up at 4:43 a.m. How many minutes did you sleep?

Answer: 500 minutes or 500

---

**"Math Is Cool" Championships -- 1996-7**  
**5th Grade - January 24, 1997**  
**College Knowledge Bowl Questions #3**

---

1. What is five 10's + eight 7's?

Answer: 106

---

2. Biff is 6 feet 4 inches tall. How many inches is that?

Answer: 76 inches or 76

---

3. Lisa did 4 math assignments; each had 8 problems. Jina did 11 assignments, each had 4 problems. How many problems did they do together?

Answer: 76 problems or 76

---

4. If there are cows and chickens in a field, and there is a total of 12 heads and 40 feet. How many cows are in the field?

Answer: 8 cows or 8

---

5. What is the hundreds digit of the product of 700 and 23852?

Answer: 4

---

6. What is the largest remainder possible when a number is divided by 15?

Answer: 14

---

7. How many prime numbers are between 44 and 60?

Answer: 3

---



# "Math Is Cool" Championships -- 1996-7

January 24, 1997

Individual Contest - Score Sheet

Score:

KEY

Full Name: \_\_\_\_\_ School: \_\_\_\_\_

DO NOT WRITE IN SHADED REGIONS

Answer			
1.	15min or 15		
2.	2		
3.	$\frac{2}{3}$		
4.	$25\pi$		
5.	$\frac{2}{3}$		
6.	$\frac{1}{2}$		
7.	8.45828		
8.	56		
9.	30days or 30		
10.	9:01 p.m.		
11.	3		
12.	21		
13.	7		
14.	6		
15.	2875		

Answer			
16.	1579		
17.	3875		
18.	60		
19.	$\frac{1}{6}$		
20.	$\frac{3}{26}$		
21.	17.4064		
22.	6		
23.	23		
24.	385		
25.	5		
26.	80		
27.	88		
28.	150		
29.	15		
30.	10days or 10		

# "Math Is Cool" Championships-1996-7

January 24, 1997

Team Contest - Score Sheet

Score:

KEY

School: \_\_\_\_\_ Team #: \_\_\_\_\_

**DO NOT WRITE IN SHADED REGIONS**

Answer			
1.	13/25		
2.	273		
3.	3		
4.	7%		
5.	Circle		
6.	187.5cm or 187.5		
7.	156,163,170 or 156163170		
8.	9		
9.	8		
10.	630		

# "Math Is Cool" Championships - 1996-7

January 24, 1997

Relay -- Score Sheet

Practice relay

24

Answer for relay #1

7

Answer for relay #2

8

# "Math Is Cool" Championships - 1996-7

January 24, 1997

Mental Math - Score Sheet

Score:

KEY

School: \_\_\_\_\_ Team #: \_\_\_\_\_

- 
- A. 1. 56  
2. 10  
3. 6  
4.  $\frac{8}{15}$

- 
- B. 1. 99  
2. 14  
3. 12,111 or 12111  
4. 48

- 
- C. 1. 42  
2. 7  
3. 3  
4. 143

- 
- D. 1. 54  
2. 24  
3. 1,111 or 1111  
4. 84 inches or 84