

"Math is Cool" Championships-2001-02

4th Grade - March 15, 2002

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	What is the product of 8 and 12?
2	What is the sum of 45 and 72?
3	What is the quotient of 155 and 31?
4	What is the difference between 87 and 79?
5	What is the product of 23 and 421?
6	What is the sum of 8921 and 7899?
7	What is the quotient of 4431 and 211?
8	What is the difference between 3111 and 2987?
9	Evaluate: $95 \times 300 \times 0 \times 1 \times 23 \times 7$
10	With the toss of a six sided dice, what is the probability of rolling a 3?
11	What is the first prime number greater than 5 ?
12	What is the remainder of the quotient of 603 and 2 ?
13	Evaluate: $\frac{2}{15} + \frac{5}{15} + \frac{1}{15}$
14	Fill in the blank: $7 + 3 + 9 = 8 + 2 + \underline{\hspace{1cm}}$
15	What is the perimeter of a rectangle with side lengths of 3 and 9 ?
16	There are 30 children in a class. The teacher gave each student two pieces of candy. How many pieces of candy did the teacher give to their students?
17	Evaluate: $(4-2) \times (3+1) \times (2-1)$
18	Casey has 8 red socks, 7 green socks, 5 yellow socks, 4 orange socks, and 23 purple socks. If Casey closes his eyes and reaches in the drawer, how many socks must be drawn to make sure he gets a matching pair?

19	What is the area of a right triangle with legs of length 3 and 4 ?
20	Troy feeds his six cows 4 bales of hay each day. How many bales of hay will he feed his cows in the month of March?
21	The computer teacher needs to install the Mavis Beacon typing program on 20 computers. Each day, he can install the program on 4 computers. How many days will it take him to install the program on all the computers?
22	Kirsten bought a watermelon for 75 cents a pound and it weighs 19 pounds. How much did Kirsten pay, in dollars, for the watermelon?
23	A ream of paper contains 500 sheets. Each ream contains 2 bad sheets. If Eho uses a full ream of paper at a time, how many reams of paper did Eho use if he found 12 bad sheets of paper?
24	To find the number of fizzles a light bulb uses, you multiply the number of gizzles by the number of seconds the lightbulb is lit. How many fizzles are used to light a 70 gizzle lightbulb for $2\frac{1}{2}$ minutes?
25	Each floppy disc holds 3 hours of work. How many discs are needed for 102 hours of work?
26	When a certain number is divided by 7 it has a quotient of 8 and a remainder of 3. What is the number?
27	Julie bought a 99¢ candy bar that had a sales tax of 13¢. If Julie gave the cashier a \$5.00 bill, how much change, in dollars, would she expect to get back?
28	You have 12 tomato plants and each plant produces 19 tomatoes. How many good tomatoes will you get, if 5 tomatoes had been damaged by caterpillars on each of the plants?
29	What is the mean (average) of the following set of data: {7, 5, 18, 20, 5, 12, 20, 3, 4, 6}

Challenge Questions

30	A group went on a seven-day, six-night trip. They left on the morning of June 10 th . What date in June did they return?
31	The cheerleaders sell sweatshirts for \$28 apiece. They sold 28 sweatshirts at the last basketball game. They also sold 39 at school. How much money, in dollars, did they collect altogether?
32	The ratio of boys to girls is 3:2. How many boys are in a class of 20 students?
33	A whole number is greater than 200 and smaller than 7000. What is the largest possible value of the sum of all of its digits?
34	Hank drove his car 60 miles per hour to Whitetail, Montana. Whitetail, Montana is 750 miles away. How many minutes did it take him to reach Whitetail?
35	Rancher Joe has 31 cows that he wants to divide equally among his grandchildren. Joe realizes that if he had one more cow, each of his grandchildren would receive 2 cows. How many grandchildren does Joe have?
36	What is the next number in the sequence: 5, 6, 8, 11, 15, 20, 26, _____
37	The maximum number of times a certain polygon and circle can intersect is 10. How many sides does this polygon have?
38	The sum of the interior angles of a polygon is 180° . How many sides does the polygon have?
39	A Cowologist noticed that a cow likes to have a space in the field of size 12 feet by 8 feet for himself in a particular field. To keep the cows happy, how many cows could fit in this field that is 10,368 square feet?
40	Two cards are placed in a hat. One has two black sides and the other has a black side and an orange side. If Joel draws a card and sees that one side is black, what is the probability the other side is black?

"Math is Cool" Championships-2001-2002

4th Grade - March 15, 2002

Team Multiple Choice Contest

Robert and Bill want to build a treehouse. Before they can build it they need to come up with a list of materials and the total estimated cost of the project. Their parents said they would give them \$200. Robert and Bill would need to pay for the rest of the project out of their savings. Robert and Bill together have \$120 in their savings account and they each receive a weekly allowance of \$5.00.

Amount of each type of material needed	Unit cost of materials	
Wood		Cost per unit
20 - 2 by 4's	1- 2 by 4	\$1.25
3 - sheets of plywood	1 - sheet of plywood	\$11.00
7- 2 by 6's	1- 2 by 6	\$3.50
Nails		
11 - pounds of framing nails	1- pound of framing nails (72 nails/pound)	80¢
3 - pounds of finishing nails	1- pound of finishing nails (120 nails/pound)	75¢
6 - pounds of roofing nails	1- pound of roofing nails 210 nails/pound	60¢
Miscellaneous		
25 - feet of rope	1- foot of rope	20¢
2 - windows	1-window	\$70.00
4 - squares of roofing	1-square of roofing	\$22.00
5 - yards of carpet	1-yard of carpet	\$6.50
2 - gallons of paint	1- gallon of paint	\$12.00
2 - paint brushes	1- paint brush	\$2.00
1- door knob	1- door knob	\$7.00
2 - hinges	1- hinge	\$1.50

Questions

1. What is the total cost of the rope bought? A) \$5 B) \$6 C) \$7 D) \$8 E) Answer not given
2. What is the total cost of all the nails needed? A) \$12.00 B) \$13.00 C) \$14.00 D) \$14.80 E) Answer not given
3. What is the total cost of all the wood needed? A) \$67.50 B) \$79.00 C) \$80.20 D) \$82.50 E) Answer not given
4. What is the single most expensive item of the entire project? A) roofing nails B) windows C) rope D) 2 by 4's E) Answer not given
5. What is the total number of nails needed for the project? A) 2010 B) 3981 C) 2412 D) 2589 E) Answer not given
6. What is the cost of 1 roofing nail? A) \$350 B) \$35 C) $\$(1/35)$ D) $\$(1/350)$ E) Answer not given
7. Total cost of the whole tree house? A) 392.78 B) \$400.65 C) \$521.21 D) 584.65 E) Answer not given
8. How much more money do Robert & Bill need if they use all the money in their savings and the money their parents give them. A) \$80.65 B) \$90.10 C) \$110.20 D) \$119.80 E) Answer not given
9. They need to wait and start the project after they save enough money. How many weeks will they need to wait if they save 100% of their allowance each week? A) 7 weeks B) 8 weeks C) 9 weeks D) 10 weeks E) Answer not given

"Math is Cool" Championships-2001-02

4th Grade - March 15, 2002

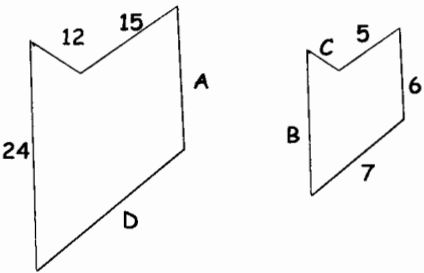
Team Contest

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 colored cover sheet.

1	What must x be in order for the following data set to have a median value of 10? {2, 72, 45, 6, 8, x }
2	The figures to the right are similar. The figures are not drawn to scale. Find: $A+B+C+D$ 
3	Grace and her Dad made a batch of chocolate chip cookies which produced 28 cookies. This coming weekend they plan to make cookies again and triple the recipe. How many cookies should they expect to produce?
4	Greg played 10 games of miniature golf and spent a total of \$25.00. Games are \$ x each if purchased one at a time, or for a better price, you can pay \$7.00 for three games. What is the value of x , if Greg bought as many of his games as he could at the 3-at-a-time price?
5	Mike has \$7.22. What is the greatest amount of quarters Mike could have, if it is known that he has at least one dollar bill, at least 3 pennies, at least 2 dimes, and at least one quarter?
6	Millie went to the store and bought a cat and a rat. The cat and rat cost \$14.00 together. The cat was twelve dollars more than the rat. How much did the cat cost?
7	The sum of three consecutive odd numbers is 15. What is the largest of the three?
8	Roy has fifteen fewer dollars than Sean. Together they have 91 dollars. How many dollars does Roy have?
9	Trisha has a basket that contains 45 green balls, 72 red balls and 88 purple balls. Trisha removes two balls at random from her basket. If the balls are the same color, she discards them. Otherwise, she puts the balls back in her basket. After awhile, Trisha is left with only one ball in her basket. What color is it?
10	Two runners are running around a $\frac{1}{4}$ mile track. One runner runs a 5-minute mile and the other runs an 10-minute mile. They start at the same place. How many seconds go by until the slower runner is lapped by the faster runner?

Practice Relay

Person#1

What is the sum of 16 and 17?

Practice Relay

Person#1

What is the sum of 16 and 17?

Practice Relay

Person#1

What is the sum of 16 and 17?

Practice Relay

Person#1

What is the sum of 16 and 17?

Practice Relay

Person#2

What is the quotient of TNYWG and 11?

Practice Relay

Person#2

What is the quotient of TNYWG and 11?

Practice Relay

Person#2

What is the quotient of TNYWG and 11?

Practice Relay

Person#2

What is the quotient of TNYWG and 11?

Practice Relay

Person#3

What is the product of TNYWG and 17?

Practice Relay

Person#3

What is the product of TNYWG and 17?

Practice Relay

Person#3

What is the product of TNYWG and 17?

Practice Relay

Person#3

What is the product of TNYWG and 17?

Practice Relay

Person#4

What is the difference between TNYWG and 33?

Practice Relay

Person#4

What is the difference between TNYWG and 33?

Practice Relay

Person#4

What is the difference between TNYWG and 33?

Practice Relay

Person#4

What is the difference between TNYWG and 33?

Relay #1

Person#1

Five students did an equal number of math problems. Together they did 30 problems. How many problems did each student do?

Relay #1

Person#1

Five students did an equal number of math problems. Together they did 30 problems. How many problems did each student do?

Relay #1

Person#1

Five students did an equal number of math problems. Together they did 30 problems. How many problems did each student do?

Relay #1

Person#1

Five students did an equal number of math problems. Together they did 30 problems. How many problems did each student do?

Relay #1

Person#2

Every clown can hold 7 balloons. How many balloons can TNYWG clowns hold?

Relay #1

Person#2

Every clown can hold 7 balloons. How many balloons can TNYWG clowns hold?

Relay #1

Person#2

Every clown can hold 7 balloons. How many balloons can TNYWG clowns hold?

Relay #1

Person#2

Every clown can hold 7 balloons. How many balloons can TNYWG clowns hold?

Relay #1

Person#3

If you have TNYWG members on your math team, how many total eyes are there in your math team?

Relay #1

Person#3

If you have TNYWG members on your math team, how many total eyes are there in your math team?

Relay #1

Person#3

If you have TNYWG members on your math team, how many total eyes are there in your math team?

Relay #1

Person#3

If you have TNYWG members on your math team, how many total eyes are there in your math team?

Relay #1

Person#4

What is the first 3-digit palindrome bigger than TNYWG?

Relay #1

Person#4

What is the first 3-digit palindrome bigger than TNYWG?

Relay #1

Person#4

What is the first 3-digit palindrome bigger than TNYWG?

Relay #1

Person#4

What is the first 3-digit palindrome bigger than TNYWG?

Relay #2

Person#1

If 6 monkeys cost \$120, how many dollars does one monkey cost?

Relay #2

Person#1

If 6 monkeys cost \$120, how many dollars does one monkey cost?

Relay #2

Person#1

If 6 monkeys cost \$120, how many dollars does one monkey cost?

Relay #2

Person#1

If 6 monkeys cost \$120, how many dollars does one monkey cost?

Relay #2

Person#2

TNYWG cars go by your house every hour. How many cars will go by your house in 3 hours?

Relay #2

Person#2

TNYWG cars go by your house every hour. How many cars will go by your house in 3 hours?

Relay #2

Person#2

TNYWG cars go by your house every hour. How many cars will go by your house in 3 hours?

Relay #2

Person#2

TNYWG cars go by your house every hour. How many cars will go by your house in 3 hours?

Relay #2

Person#3

If you can do five math problems every minute, how many minutes will it take you to do TNYWG math problems?

Relay #2

Person#3

If you can do five math problems every minute, how many minutes will it take you to do TNYWG math problems?

Relay #2

Person#3

If you can do five math problems every minute, how many minutes will it take you to do TNYWG math problems?

Relay #2

Person#3

If you can do five math problems every minute, how many minutes will it take you to do TNYWG math problems?

Relay #2

Person#4

If a cat weighs 4 pounds, how many pounds does TNYWG cats weigh?

Relay #2

Person#4

If a cat weighs 4 pounds, how many pounds does TNYWG cats weigh?

Relay #2

Person#4

If a cat weighs 4 pounds, how many pounds does TNYWG cats weigh?

Relay #2

Person#4

If a cat weighs 4 pounds, how many pounds does TNYWG cats weigh?

"Math is Cool" Championships-2001-02

4th Grade - April 12, 2002

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 18 and 23?	41
2	What is the product of 9 and 8?	72
3	What is the difference between 51 and 38?	13
4	If each mental math question takes 45 seconds, how many minutes would it take to do 16 questions?	12 [mins]
Person #2		
1	What is the quotient of 42 and 6?	7
2	What is the sum of 43 and 28?	71
3	What is the product of 4 and 7?	28
4	How many odd numbers between 30 and 40 have only one digit that is a three?	4 [numbers]
Person #3		
1	What is the difference between 54 and 25?	29
2	What is the quotient of 98 and 14?	7
3	What is the sum of 121 and 79?	200
4	If a fax can send a page every 8 seconds, how many pages could it send in 2 minutes?	15[pages]
Person #4		
1	What is the product of 6 and 9?	54
2	What is the difference between 87 and 29?	58
3	What is the quotient of 76 and 19?	4
4	In 7 th grade, Biff took home 1 trophy. In 8 th grade he took home 2 trophies. In 9 th grade he took home 3 trophies. If this pattern continues, what would be the total number of trophies he would have taken home by the time he gets out of high school?	21 [trophies]

"Math is Cool" Championships-2001-02

4th Grade - April 12, 2002

<u>College Knowledge Bowl Questions #1</u>		
1	Bill sells cans of corn for 31¢ a can. What is the most number of cans you can buy with \$5.00?	16 [cans]
2	One cow can eat $1\frac{1}{2}$ bales of hay a day. How many bales can 12 cows eat a day?	18 [bales]
3	What is the perimeter of a regular pentagon with side length 9?	45
4	Morten needs to store 4 pounds sugar. He has 2 jars that can hold 16 ounces apiece. How many additional jars must he have that will hold 8 ounces apiece in order to store the entire 4 pounds of sugar?	4 [jars]
5	I am thinking of a number. If I multiply the number by 2 then add 17 then divide by 5, the answer is 5. What is the number?	4
6	There are chickens and cows in a field. There are a total of 14 heads and 44 feet. How many cows are in the field?	8 [cows]
7	The sum of two consecutive odd numbers is 40. What is the largest of the two numbers?	21
Number <u>8</u> is an extra question. Only use it if needed.		
8	What is the area of a rectangle with sides of length 9 and 12?	108

"Math is Cool" Championships-2001-02

4th Grade - April 12, 2002

<u>College Knowledge Bowl Questions #2</u>		
1	Josh lives 4 miles from the grocery store. His Dad sent him to the store to pick up eggs and butter to make cookies. Halfway home from the grocery store, he realized he forgot to buy eggs. So he went back to the store and got them, then went home. How many total miles did he ride his bike on this trip to get eggs and butter?	12 [miles]
2	What time is it 127 minutes before 1:10 a.m.?	11:03p.m.
3	How many sides does a hexagon have?	6
4	Biff and Eho want to go rock climbing. They have been told they needed 510 feet of rope to safely climb the sheer face of Inferno Peak. They have 140 feet of rope. How many more feet of rope do they need?	370 [feet]
5	If six people all shake hands with each other once, how many handshakes occur?	15 [handshakes]
6	What is the probability of drawing a red king or a black queen from a standard deck of cards?	$\frac{4}{52}$ or $\frac{2}{26}$ or $\frac{1}{13}$
7	75 is 12 more than what number?	63
Number <u>8</u> is an extra question. Only use it if needed.		
8	What are the odds in favor of rolling a prime number with one roll of a single six-sided die?	3:3 or 1:1 or 1

"Math is Cool" Championships-2001-02

4th Grade - April 12, 2002

<u>College Knowledge Bowl Questions #3</u>		
1	$33 + 33 + 33 = 9$ times what number?	11
2	What is product of the tens digit and thousands digit of 49,281?	72
3	What is the greatest common factor of 81, 27 and 45?	9
4	How many hours are in a week?	168 [hours]
5	Amanda earns \$3 each time she mows the lawn. One summer she earned \$42. How many times did she mow the lawn?	14 [times]
6	If a cow can eat 40 pounds of hay a day, how many days will it take the cow to eat 800 pounds of hay?	20 [days]
7	What is the probability of rolling an even number with one roll of a six-sided die?	$\frac{3}{6}$ or $\frac{1}{2}$
Number <u>8</u> is an extra question. Only use it if needed.		
8	Today the difference between Bill and Robert's ages is 8. In four years Bill will be twice as old as Robert. How old is Robert today?	4 [years old]

"Math is Cool" Championships -- 2001-02

4th grade - March 15, 2002

Key

School Name _____ Team # _____

Proctor Name _____ Room # _____

Full Name: _____

1st Score

Individual Contest - Score Sheet

DO NOT WRITE IN SHADED REGIONS

Out of 40

	Answer	1 or 0	1 or 0
1	96		
2	117		
3	5		
4	8		
5	9683		
6	16820		
7	21		
8	124		
9	0		
10	1/6		
11	7		
12	1		
13	8/15		
14	9		
15	24		
16	60 [pieces of candy]		
17	8		
18	6[socks]		
19	6		
20	124[bales]		

	Answer	1 or 0	1 or 0
21	5[days]		
22	[\$]14.25		
23	6[reams]		
24	10500[fizzles]		
25	34[discs]		
26	59		
27	[\$]3.88		
28	168[tomatoes]		
29	10		
30	[June] 16 th		
31	[\$]1876		
32	12[boys]		
33	33		
34	750(minutes)		
35	16(grandchildren)		
36	33		
37	5[sides]		
38	3[sides]		
39	108[cows]		
40	2/3		

"Math is Cool" Championships -- 2001-02

4th grade - March 15, 2002

Key

School Name _____ Team # _____

Proctor Name _____ Room # _____

Team Multiple Choice Contest-Score Sheet

1st Score

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

Out of 18

DO NOT WRITE IN SHADED REGIONS

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

"Math is Cool" Championships -- 2001-02

4th grade - March 15, 2002

Key

School Name _____ Team # _____

Proctor Name _____ Room # _____

Team Contest-Score Sheet

DO NOT WRITE IN SHADED REGIONS

1st Score

Out of 10

	Answer	1 or 0	1 or 0
1	12		
2	51		
3	84[cookies]		
4	[\$]4.00		
5	23[quarters]		
6	[\$]13.00		
7	7		
8	[\$]38		
9	Green		
10	150[seconds]		

"Math is Cool" Championships -- 2001-02

4th grade - March 15, 2002

Key

School Name _____ Team # _____

Proctor Name _____ Room # _____

Relay Contest - Score Sheet

Practice relay
33
3
51
18
Answer for relay #1
6
42
84
101
Answer for relay #2
20
60
12
48