Sponsored by: 4th Grade – March 28, 2008 Individual Contest

GENERAL INSTRUCTIONS applying to all tests:

- Good sportsmanship is expected throughout the competition by <u>all</u> 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.
- 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 O.

INDIVIDUAL TEST - 35 minutes

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. Each problem is scored as a 1 or 0. Record your answers on the score sheet. No talking during the test. You will be given a 5 minute warning.

Sponsored by: 4th Grade – March 28, 2008 Individual Contest

Record all answers on the colored cover sheet.

1	How many sides does a square have?
2	Find the difference between 39 and 17.
3	Nicky is carrying two packages. One weighs 6 pounds and the other weighs 7 pounds. How many pounds do Nicky's two packages weigh together?
4	What digit is in the hundreds place of the number 63,548?
5	How many months are in three years?
6	Add 100 plus 1000 plus 10.
7	Sally is listing the counting numbers (1, 2, 3, and so on) in order. How many counting numbers go in the box between 5 and 11? 1, 2, 3, 4, 5, 2, 11, 12, 13,
8	What is the product of 7×10 ?
9	I have a math book, a science book, and a history book in a row on the shelf. In how many different orders can I arrange them if I want to keep the math book and the science book next to each other?
10	If you multiply an odd counting number by an even counting number, will the result be even or odd? Answer "can't tell" if there is not enough information to be sure.
11	If A is a square with a side length of 10 inches, and B is a circle with diameter 10 inches, which has the larger area, A or B? Answer "same" if the areas are equal.
12	What is the missing number in this sequence? 5, 12, 19,, 33
13	Larry is putting 38 eggs in 6 baskets. If each basket has the same number of eggs, what is the least (smallest) number of eggs that could be left over?
14	How many triangles can be drawn following the lines of this figure?
15	Stephanie uses two carrots and one tomato to make one cup of carrot-tomato juice. What is the total number of vegetables (carrots and tomatoes) of this size that she would need to make a quart of carrot-tomato juice?
16	A fence is to be placed around a rectangular garden that is 8 feet by 5 feet. How many feet of fencing are needed?
17	Sandy practiced the flute 10 days in December and 20 days in January. How many total days in December and January did Sandy NOT practice the flute?
18	If you sleep for 8 hours a day and are awake the rest of the day, what fraction of the day are you awake?

19	A coat costs \$47. George has enough money to pay the exact price without using coins. If George
1/	has just one \$20 bill and no \$2 bills, what is the smallest total number of bills he could have?
20	What is the sum of the first five odd counting numbers?
20	
21	Karen has 64 cookies. She puts them into 4 bags, with an equal number of cookies in each bag.
21	Lauren takes 3 of those bags. How many cookies does Lauren take?
22	One fish can eat four bugs in one hour. At this rate, how many bugs can three fish eat in two
22	hours?
22	What is the product of 98 times 76?
23	
24	A bird flies at ten feet per second. How many seconds will it take for the bird to reach Andrew,
24	who is standing 30 yards away?
25	April had 18 apricots, Beryl had 118 berries, and Cheryl had 218 cherries. Each girl ate half her
25	fruit (always eating whole fruits). How many pieces of fruit did the three girls have left?
21	When I triple my number, subtract 6, then divide by 2, I get 12. What is my number?
26	
~7	Steve filled his car's gas tank and then drove 200 miles before running out of gas. If the gas tank
27	holds 8 gallons, how many miles per gallon does Steve's car get?
	One MathSnack has 170 calories. How many MathSnacks can Jody eat without going over 2,000
28	calories?
29	The sum of my number and 18 is the same as the product of my number and 7. What is my number?
30	Aly is twice as old as her brother today. When she is 25 years old, her brother will be 20 years
30	old. How many years old is Aly today?

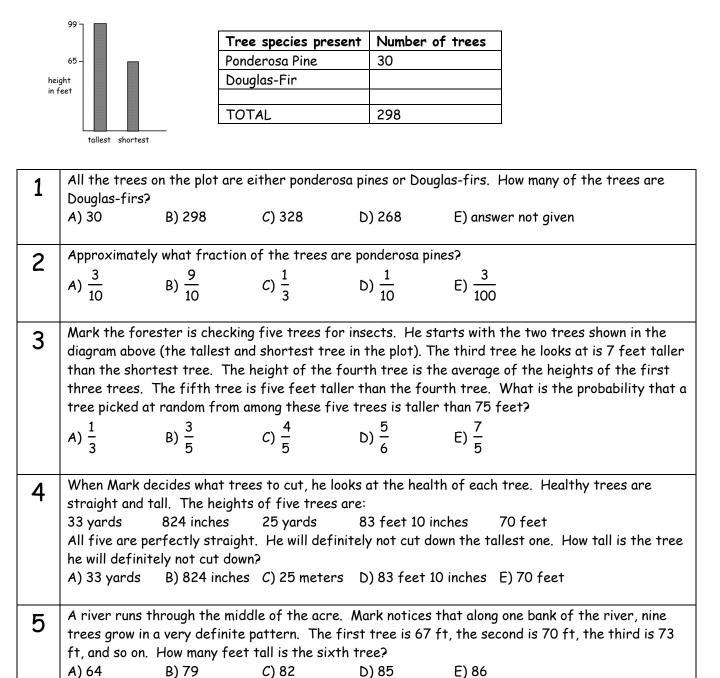
Challenge Problems on next page.

	Challenge Questions
31	A lollipop costs a quarter and a candy bar costs 75¢. If I spent \$9.25 and bought eight candy bars, how many lollipops did I buy?
32	A tea bag can make 3 cups of tea, where each cup is 8 fluid ounces. How many fluid ounces of tea can 27 tea bags make?
33	Lucy took two-dozen pencils to school on Monday. By the end of the day, she had lost one of these pencils. She lost the same number of pencils on Wednesday as she did on Tuesday. On Thursday she lost 7 pencils. On Friday she lost at least one pencil, but not as many as she lost on Wednesday. If she still had 6 pencils when she left school on Friday, how many pencils did she lose on Tuesday?
34	Dave has invented a new throwing toy for his dog. The toy, called a Frismerang, is shown at right. Each side of the shaded triangle in the middle is 3 inches. Each other part of the toy is either a square or a triangle with the same side lengths as the shaded triangle. What is the length in inches of the outline (perimeter) of the Frismerang?
35	Biff and Eho are buying ice cream at Dairy Queen. Biff buys a Blizzard for \$2.73. Eho buys a Brownie Earthquake for \$3.19. Before they paid for the ice cream, they had three times as much money as they had left after they paid for the ice cream. How much money, in dollars, did they have before buying ice cream?
36	A mountain is 9000 feet high. A mountain-climber is 72 inches tall. The mountain is how many times as tall as the climber?
37	A pen and a note pad together cost 60 cents. The pen costs 40 cents more than the note pad. At these prices, how much money (in dollars) would you have left from a \$5 bill after buying 13 of the note pads?
38	Cory has 5 pairs of Nike shoes, 4 pairs of Adidas shoes, and 6 pairs of Puma shoes. If she picks shoes without looking, how many shoes does she need to pick in order to be sure that she has one right and one left shoe of the same brand?
39	Put the following five values in order of size, starting with the smallest, and give the letters matching that order. Your answer should consist of 5 letters in the correct order. A = 1000 hours, B = 1 week, C = 10,000 minutes, D = 9 days, E = 1 month
40	For how many of the first 600 counting numbers is the sum of their digits less than 20?

Sponsored by: 4th Grade – March 28, 2008 Team Multiple Choice Contest

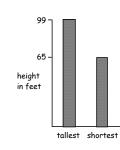
In some places, fire is a natural part of a forest's life and the forest can recover if burned. If all fires are prevented, the forest may become unhealthy and overgrown. Sometimes it is necessary for forest managers (foresters) to cut down sick trees in order to restore the forest to its natural state. Mark, the forester, is doing this work on the one-acre plot of forest described below.

NOTES: "Range" is the difference between the largest and smallest of a group of numbers. One square mile is equal to 640 acres.



In some places, fire is a natural part of a forest's life and the forest can recover if burned. If all fires are prevented, the forest may become unhealthy and overgrown. Sometimes it is necessary for forest managers (foresters) to cut down sick trees in order to restore the forest to its natural state. Mark, the forester, is doing this work on the one-acre plot of forest described below.

NOTES: "Range" is the difference between the largest and smallest of a group of numbers. One square mile is equal to 640 acres.



Tree species present	Number of trees
Ponderosa Pine	30
Douglas-Fir	
TOTAL	298

6	circular 'rin	gs', a dark ring fo old is this tree?	or every winter	and a light ring	nside the trunks there are for every summer. How ving!) E) 9	
7			•	•	es, there are 171 trees lef rees did he cut down?	t. He cut down
	A) 118	B) 80	C) 90	D) 157	E) 97	
8		ark has finished est tree that wa	-	he range of tre	e heights is 27 feet. How	many feet tall
	A) 27	B) 66	C) 72	D) 78	E) answer not given	
9	two square	•	est, if the plot c		ber of trees you would exp are any trees are cut down	
	•	B) 400,000		D) 38,144	E) 1,280	

Sponsored by: 4th Grade - March 28, 2008 Team Contest

1	Biff made 5 trips from the grocery store to his car to carry out the watermelons he bought for a picnic. On one trip he carried 2 watermelons, on one trip he carried 3 watermelons, and on each of the other trips he carried one watermelon. Eho made a single trip, using a cart to take out all 5 of the watermelons he bought. How many watermelons did Biff and Eho buy altogether?
2	Put the following five values in order from smallest to largest. Your answer should consist of five letters in the correct order.
	$A = \frac{1}{4}$ $B = \frac{1}{2}$ $C = \frac{1}{5}$ $D = \frac{3}{4}$ $E = \frac{3}{8}$
3	Subtract 18 from the sum of 8 and 80.
4	 Give the letters of all of the following statements that are true. If none are true, answer "none". A) The three sides of a triangle must be equal. B) The radius of a circle is twice its diameter. C) All squares are rectangles. D) A trapezoid is a type of quadrilateral.
5	Seven students stayed for a while after school to work on a poster for Math Team. Chris left before Mary. Allison left before Henry, who left after Kitty. Robin and Chris left together. Kitty left before Jim. Robin left after Henry. List the name of every student who could possibly have been the last to leave.
6	I have 90 cents. What is the largest number of 3-cent jellybeans I could buy, if I also buy at least one 5-cent gumball and end up with no money left over?
7	The positive multiples of 3 are the numbers you say when counting by threes starting with 3. How many of the first 100 counting numbers have at least one <u>digit</u> that is a positive multiple of 3?
8	Sherry adds her favorite counting number to Terry's favorite counting number and gets an even sum. When Sherry divides her number by 4, the remainder is 2. Is Terry's number even or odd? Answer "can't tell" if there is not enough information to be sure.
9	My pet bunny rabbit hops 2.5 feet with each hop, and hops 100 hops per hour. On average, how many inches does my bunny hop each minute? If your answer is not a whole number, give it as a decimal.
10	At the beginning of day 1 (before any mosquitoes hatch or get eaten), twenty rainbow trout are swimming in a pond with 1000 adult mosquitoes. Each trout eats 15 adult mosquitoes every evening, but 325 new adult mosquitoes are hatched every day at noon. No other mosquitoes die. On day number <i>n</i> , the population of adult mosquitoes first reaches 1500. What is <i>n</i> ?

Sponsored by: 4th Grade - March 28, 2008 Relay Contest

RELAYS - 5 minutes per relay

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	Evaluate 3 + 5 - 2.	6
Person 2	Evaluate TNYWG + 17.	23
Person 3	Find the product of TNYWG and 4.	92
Person 4	Find the difference between TNYWG and 90.	2
	Relay #1	Answer
Person 1	There are 4 chickens and 3 cows in a field. How many feet are in the field altogether?	20 [feet]
Person 2	From the wool of one sheep, you can knit TNYWG caps. How many caps can you knit from the wool of 4 sheep?	80 [caps]
Person 3	The temperature outside yesterday was TNYWG degrees F. Overnight last night, the temperature dropped 30 degrees F. This morning, the temperature rose 20 degrees F. It is now noon. What is the temperature outside now, in degrees F?	70 [degrees F]
Person 4	Find the product of 17 and 11, and then add TNYWG.	257
	Relay #2	Answer
Person 1	What is the number of units in the perimeter of a rectangle with side lengths of 3 units and 6 units?	18 [units]
Person 2	Evaluate 2 \times TNYWG \times 5.	180
Person 3	Paula makes TNYWG cupcakes, and Brad puts these cupcakes into boxes. Each box holds 3 rows of cupcakes, with 5 cupcakes in each row. How many boxes will Brad need?	12 [boxes]
Person 4	Multiply TNYWG by the 9 th term in the following sequence: 65, 60, 55, and so on.	300

Sponsored by:

4th Grade - March 28, 2008

Final Score: KEY

School Name____

_____Team #_____

Proctor Name____

____Room #_____ Division: ____

MENTAL MATH - 30 seconds per question

PERS	ON 1 NAME:	1 or 0
1.1	How many inches are in two feet?	24 [in]
1.2	Find the sum of seven plus eight, then subtract five.	10
1.3	To find the square of a number means to multiply the number by itself. What is the square of 6?	36
1.4	What time will it be two hours and fifteen minutes after 6:00 AM?	8:15 AM
PERS	ON 2 NAME:	·
2.1	Subtract twelve from twenty-nine.	17
2.2	The area of a rectangle is twenty-four square inches, and one side length is six inches. What is the number of inches in the other side length?	4 [inches]
2.3	How many seconds are in half a minute?	30 [sec]
2.4	Yesterday was Saturday. What day will it be the day after tomorrow?	Tuesday
PERS	ON 3 NAME:	-
3.1	How many days are in three weeks?	21 [days]
3.2	Joel has four chocolate cookies and one peanut butter cookie. If Joel picks one cookie at random, what is the probability that Joel picks a peanut butter cookie? Give your answer as a fraction.	1/5
3.3	How many cents are left if you start with one dollar's worth of change, and then spend a dime, a nickel, and a penny?	84 [cents]
3.4	Miya is six years older than Henry. Miya is sixteen years old. How many years old is Henry?	10 [years]
PERS	ON 4 NAME:	
4.1	What is the average of three, seven, and five?	5
4.2	Baby Danelle is one and one-twelfth years old. How many months old is Baby Danelle?	13 [months]
4.3	What is the digit in the tens place of the product of 8 and 7?	5
4.4	Find the fourth number of the sequence whose first three numbers are nine, eighteen, and twenty-seven.	36

Sponsored by: 4th Grade - March 28, 2008 **Division 1**

#	Problem	Answer
1	The year 2008 is a Leap Year. How many	8 [months]
	months in 2008 will have an odd number of	
	days?	
2	What is 165 minus 79?	86
3	Miya has eight candies. Helen gives Miya six	20 [candies]
	candies. They now have equal numbers of	
	candies. How many candies did Helen begin	
	with?	1
4	How many meters are in three kilometers?	3000 [m]
5	Cam drives to Canada at sixty miles per hour.	$2\frac{1}{2}$ [hours]
	If the distance is one hundred fifty miles,	2
	how many hours does he drive? If your	
	answer is not a whole number, give it as a	
	mixed number.	
6	How many cups are in two and one-half pints?	5 [cups]
7	The Incredible Shrinking Woman is five feet	7 [years]
	two inches tall. If she shrinks two inches	
	every year, how many years will it take for her	
	to reach four feet in height?	
	Extra Problem – Only if Needed	
8	Find the ones-place digit of the product of the first ten counting numbers.	0

Sponsored by:

4th Grade - March 28, 2008

Division 1

#	Problem	Answer
1	A bag has three red marbles, five blue marbles, and seven green marbles. I take one marble from the bag at random. What is the probability that I will get a	$\frac{5}{15}$ or $\frac{1}{3}$
	blue marble? Give your answer as a fraction.	
2	Today is Wednesday. What day of the week will it be twenty-three days from today?	Friday
3	If one half of my number is one hundred, what is twice my number?	400
4	It is now seven-forty PM. If your bedtime is eight- thirty PM, how many more minutes do you have before your bedtime?	50 [minutes]
5	There are a dozen eggs in a carton. George eats one- half of the eggs, and Martha eats one-third of the eggs. How many eggs are left in the carton?	2 [eggs]
6	Nemo flaps his fin twenty times per minute. How many times does he flap his fin in five minutes and thirty seconds?	110 [times]
7	The Sled-Dogs football team has two wins and six losses. What is the smallest number of additional games they need to play to win at least half of their game this season, if they don't lose any more games and there are no ties?	4 [wins]
	Extra Problem - Only if Needed	
8	What is 47 times 27?	1269

Sponsored by:

4th Grade - March 28, 2008

Division 1

#	Problem	Answer
1	Anna is forcing me to write math questions. If I	7 [hours]
	need to write 14 questions and I write 2 questions in	
	each hour, how many hours will I need to spend	
	writing problems to finish all the questions?	
2	What is 37 plus 14 minus 29?	22
3	What is the smallest whole number greater than	24
	zero that can be divided with no remainder by both	
	8 and 12?	
4	There are 95 kids in the cafeteria who are actually	190 [kids]
	eating their lunches. If that is one-third of all the	
	kids in the cafeteria, how many kids in the cafeteria	
	are not eating their lunches?	
5	What is the largest 4-digit counting number that	9998
	has three digits the same and one different?	
6	How many ways can you arrange the letters in the	6 [ways]
	word bank, spelled B-A-N-K, if all your arrangements	
	must start with B?	
7	Ian likes to count by 8's. What is the fifth number	35
	he will say if the first number he says is 3?	
	Extra Problem – Only if Needed	
8	What is the median of the values 7, 13, 4, and 11?	12

Sponsored by: 4th Grade - March 28, 2008 **Division 2**

#	Problem	Answer
1	What is the average of 30 and 18?	24
2	Each angle of an equilateral triangle is the same	60 [degrees]
	number of degrees. All the angles of a triangle	
	add up to 180 degrees. How many degrees are in	
	each angle of an equilateral triangle?	
3	There are 2 bugs in a rug and 3 rugs in a jug.	24 [bugs]
	How many bugs are in 4 jugs?	
4	I plan to study mental math one day next week.	$\frac{2}{7}$
	If I choose the day at random, what is the	/
	probability that it will be EITHER Monday OR	
	Tuesday? Give your answer as a fraction.	
5	How many ounces are in a pound?	16 [ounces]
6	When my number is added to 10, the sum is the	30
	same as the product of two times 20. What is	
	my number?	
7	Angela has eight coins. None of them are	10 [cents]
	pennies. She has less than 50 cents. What is	
	the value in cents of the most valuable coin she	
	could have?	
	Extra Problem - Only if Needed	
8	If a large Tetris piece consists of 4 small pieces and it takes 10 small pieces to clear a row, how many large pieces are needed to clear 2 rows?	5 [pieces]

Sponsored by:

4th Grade - March 28, 2008

Division 2

#	Problem	Answer		
1	What is the mode of the following set of	3		
	numbers: three, two, three, two, three, and			
	four?			
2	A pudding recipe calls for 2 cups of milk and one	2 [pints]		
	egg. If you use two eggs to make a larger			
	pudding with this recipe, how many <u>pints</u> of milk			
	should you use?			
3	What is the largest possible 3-digit counting	987		
	number that has all its digits different?			
4	What fraction is equal to one-half of one-half?	$\frac{1}{4}$		
5	5 What is the difference when you subtract the			
	product of 3 times 11 from the product of 17			
	times 2?			
6	If it was Monday one week and two days ago,	Tuesday		
	what day was it yesterday?			
7	Lewis is counting by threes. The first number	13		
	he says is four. What is the first <u>odd</u> two-digit			
	number he will say?			
	Extra Problem - Only if Needed			
8	Is the number of days in 7 weeks closer to the number of days in one month or in two months?	2 [months]		

Sponsored by:

4th Grade - March 28, 2008

Division 2

#	Problem	Answer
1	Jinglin had fifty cents. Then she spent a dime and a	15 [cents]
	quarter. How many cents did she have left?	
2	The last time I poured a cup of coffee for myself was	40 [minutes]
	this morning at 8 AM. It is now 20 minutes before 9	
	AM. How many minutes have gone by since I poured	
	myself a cup of coffee?	
3	The area of a square is 4 square centimeters. What is	8
	the number of centimeters in the perimeter of the	[centimeters]
	square?	
4	What is the sum of the largest two-digit whole number	199
	and the smallest three-digit whole number?	
5	A horse runs at 12 miles per hour. If it keeps up this	42 [miles]
	rate, how many miles will it travel in three and one-half	
	hours?	
6	What digit is in the ones place of the sum of 854 and	3
	389?	
7	Cam is trying to learn a list of 100 spelling words.	4 [hours]
	Every hour he spends studying, he learns 25% of the	
	words on the list. How many hours will he need to	
	study to learn 100% of the words on the list?	
	Extra Problem – Only if Needed	
8	Anna's favorite number is a whole number that can be divided by 3	132
	with no remainder. What is her favorite number if it is greater than	
	129 and less than 135?	

4th Grade - March 28, 2008

School Name_____

_____Team #_____

First Score

Final Score:

KEY

Proctor Name______Room #_____

STUDENT NAME

Division:

Individual Contest - Score Sheet DO NOT WRITE IN SHADED REGIONS

	Answer	1 or 0	1 or 0		Answer	1 or 0	1 or 0
1	4 [sides}			21	48 [cookies]		
2	22			22	24 [bugs]		
3	13 [pounds]			23	7448		
4	5			24	9 [seconds]		
5	36 [months]			25	177 [pieces]		
6	1110			26	10		
7	5 [numbers]			27	25 [miles per gallon]		
8	70			28	11 [MathSnacks]		
9	4 [orders]			29	3		
10	even			30	10 [years]		
11	A			31	13 [lollipops]		
12	26			32	648 [ounces]		
13	2 [eggs]			33	4 [pencils]		
14	5 [triangles]			34	72 [inches]		
15	12 [vegetables]			35	[\$] 8.88		
16	26 [feet]			36	1500 [times]		
17	32 [days]			37	[\$] 3.70		
18	16/24 or 2/3			38	16 [shoes]		
19	6 [bills]			39	CBDEA		
20	25			40	580 [numbers]		

"Math is Cool" Championships – 2007-08 4th Grade – March 28, 2008	Final Score: KEY
School NameTeam #	First Score
Proctor NameRoom #Division:	(out of 18)

Team Multiple Choice Contest - Score Sheet

TEAM MULTIPLE CHOICE - 15 minutes

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.

	Answer	-1, 0 or 2	-1,0 or 2
1	D		
2	D		
3	В		
4	A		
5	С		
6	С		
7	A		
8	С		
9	В		

DO NOT WRITE IN SHADED REGIONS

"Math is Cool" Championsl 4th Grade - March 28	Final Score: KEY		
School Name	Team #	¥	First Score
Proctor Name	_Room #[Div:	(out of 20)

Team Contest - Score Sheet

TEAM TEST - 15 minutes

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 2 or 0.

DO NOT WRITE IN SHADED REGIONS

	Answer	2 or 0	2 or 0
1	13 [watermelons]		
2	CAEBD		
3	70		
4	C, D [either order]		
5	Jim, Mary [either order]		
6	25 [jellybeans]		
7	51 [numbers]		
8	even		
9	50 [inches]		
10	[n=] 8		

KEY

4th Grade - March 28, 2008

School:_____Team #_____

Proctor: _____ Room #_____Div ____

PRACTICE RELAY

Answer for person	Answer for person	Answer for person	Answer for person
# 1	# 2	# 3	# 4
6	23	92	2
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 1

Answer for person	Answer for person	Answer for person	Answer for person
# 1	# 2	# 3	# 4
20 [feet]	80 [caps]	70 [deg F]	257
1 or 0	1 or 0	1 or 0	2 or 0

RELAY # 2

Answer for person	Answer for person	Answer for person	Answer for person
# 1	# 2	# 3	# 4
18 [un]	180	12 [boxes]	300
1 or 0	1 or 0	1 or 0	2 or 0