

### Individual Contest

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

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

#### Two Points Each

	Answer	Pts
1		
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#### Three Points Each

	Answer	Pts
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

Subtotal 1-20	
Subtotal 21-30	
Total	

## Individual Contest

1	Evaluate: $3+5 \times 6-7$
2	Kelsey really likes to read. If she reads 2 books every day for 3 weeks, how many books will she have read?
3	What is the total number of degrees in the interior angles of a rhombus?
4	If a triangle has angle measures of 20 and 60, what is the third angle measure?
5	What is $17 \times 17$ ?
6	Jim is driving to his friend's house 20 miles away. It takes him 30 minutes to get there. What was Jim's average speed in miles per hour?
7	What is the sum of a and b in this sequence? 1, 3, a, 7, 9, b, 13
8	Stephanie has 5 pictures of Zac Efron. If Kelsey has 3 times as many pictures of Zac Efron than Stephanie, and Berta has $\frac{2}{3}$ the amount that Kelsey has, how many pictures of Zac Efron does Berta have?
9	Jens has 3 chickens. If one chicken lays 3 eggs an hour, another chicken lays 8 eggs in 2 hours and the third chicken lays 6 eggs in one hour, how many eggs will be laid after a half hour? Do not count partial eggs.
10	Hillary bakes cookies. Bertha steals $\frac{1}{2}$ of them. Kelsey steals $\frac{1}{3}$ of the remaining. Trung accidentally throws away 5. Hillary only has 1 cookie left. How many cookies did she have originally?
11	Eden runs into a Pidgey in Pewter City! Her only Pokémon is a Pikachu and his only attack is a tail whip, which causes his opponent to lose 13 HP (health points) each time. If the Pidgey has a total of 92 HP, how many times does Eden's Pikachu need to attack it to win the battle (0 HP)?
12	There are 3 weets in a wat. There are 5 wats in twade. How many weets are in $\frac{5}{2}$ twades?
13	Stephanie leaves for school at 8:15, spends 6 hours school, and returns home at 3:15. All the time she wasn't at school, she was either going to or from school. The trip takes the same amount of time both ways. How many minutes did the drive to school take?
14	Find the next term in this sequence: 4, 1, 5, 6, 11, 17
15	Kirsten bought candy for 35 cents, and paid in only dimes and nickels. How many possible ways could she have paid?

16	Mr. Tubman's class recently took a test worth 10 points. The scores were as follow; 6, 8, 7, 4, 3, 10, 5, 9, 8, 9, 5, 3, 4, and 8. If everyone who achieved higher than the mean score passed, what percent of the class passed?
17	If Richard works out 2 hours for every 3 hours of Aion he plays, how many hours of Aion did he play if he worked out for 16 hours?
18	James has a package of animal crackers. The package contains 3 zebras, 8 camels, and 2 lions. James takes one cookie out of the package. What is the probability that the cookie he took is a lion?
19	What is the probability of rolling a sum of 9 with two fair six-sided dice?
20	If I have 2 green socks, 3 blue socks, and 5 red socks in a drawer, what is the probability that I will pull out a two green socks at random?
21	Trung, Kelsey, Berta, and Steph are all siblings. Berta is 8 years old. Kelsey is 4 years older than Trung, who is 1 year younger then Berta. Steph's age is 6 away from Kelsey's, and 2 years away from Trung's. How old is Steph?
22	6 people are in a room. How many handshakes will occur if every person shakes the hand of each person exactly once?
23	Convert to a reduced fraction: 0.875
24	My favorite number has exactly 5 positive factors, including one and itself. The sum of the digits is 7. What is my favorite number?
25	Suhmiin buys a dress that was original priced at \$70 for 40% of the cost, an no tax. If she pays with a \$50 bill, how much change should she get back?
26	How many different ways can I rearrange the letters in RAINIER?
27	Shelby is mailing letters to her friends. She has 12 letters, and each letter needs a stamp. The first stamp costs 22 cents and each subsequent stamp costs one cent less until the minimum price of 15 cents. How much money will Shelby need to spend on stamps in dollars?
28	It takes Igor 30 minutes to compose a symphony. It takes Dmitri 20 minutes to compose a symphony. How many minutes will it take for both Igor and Dmitri to compose a symphony together?
29	The fraction $\frac{25}{36}$ can be written as $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$ where a, b, and c are positive integers. What is a+b+c?
30	Two identical right triangles with integer side lengths and a hypotenuse of 10 are placed hypotenuse to hypotenuse. What is the area of the resulting rectangle?

## Individual Contest

Name: \_\_\_\_\_

School: \_\_\_\_\_

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

### Two Points Each

	Answer	Pts
1	26	2
2	42 (Books)	2
3	360	2
4	100	2
5	289	2
6	40 (mph)	2
7	16	2
8	10 (pictures)	2
9	6 (eggs)	2
10	18 (cookies)	2
11	8 (times)	2
12	$75/2$	2
13	30 (minutes)	2
14	28	2
15	4	2
16	50%	2
17	24	2
18	$2/13$	2
19	$1/9$	2
20	$1/45$	2

### Three Points Each

	Answer	Pts
21	5 (years)	3
22	15 (handshakes)	3
23	$7/8$	3
24	16	3
25	(\$ ) 22	3
26	1260 (ways)	3
27	(\$ ) 2.08	3
28	12 (minutes)	3
29	16 or 44 or 23` , any one	3
30	48 (units squared)	3

Subtotal 1-20	
Subtotal 21-30	
Total	<b>KEY</b>

## Mental Math Test

Name: \_\_\_\_\_

School: \_\_\_\_\_

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

Score: \_\_\_\_\_

10 minutes - Write only the answer, no work, no erasers, no cross-outs

	Problem	Answer	Pts
1	$12^2 = ?$		
2	How many positive prime numbers are there under 25?		
3	Which is larger: $\frac{8}{13}$ or $\frac{33}{52}$ ?		
4	$831 + 1313 =$		
5	$2+4+8 \times 5 =$		
6	If $a@b = ab - a/b$ what is $3@6$ ?		
7	$5! =$		
8	What is the area of a right triangle with leg lengths 7 and 10?		
9	The number 24 has how many prime divisors?		
10	Find the mean of 12, 13, and 17.		
11	$4^3 = ?$		
12	Express: $\frac{1}{3} + \frac{5}{2}$ as a mixed number.		
13	What is the value of three nickels, seven pennies, two dimes, and three quarters expressed in dollars?		
14	$17 \times 9 =$		
15	Express $0.\overline{4}$ as a reduced fraction.		
16	What is the perimeter of a square with side length 6.5?		
17	What is the greatest common factor (divisor) of 24 and 84?		
18	What is the perimeter of a nonagon with a side length of 11 units?		
19	What is the hypotenuse of a triangle with legs 6 and 8?		
20	What is the general form of the area of a square, side length $x$ , divided by its perimeter?		

## Mental Math Test

Name: \_\_\_\_\_

School: \_\_\_\_\_

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

Score: **KEY**

10 minutes - Write only the answer, no work, no erasers, no cross-outs

	Problem	Answer	Pts
1	$12^2 = ?$	144	1
2	How many positive prime numbers are there under 25?	9	1
3	Which is larger: $\frac{8}{13}$ or $\frac{33}{52}$ ?	33/52	1
4	$831+1313=$	2144	1
5	$2+4+8 \times 5=$	46	1
6	If $a@b=ab-a/b$ what is $3@6$ ?	$35/2$	1
7	$5! =$	120	1
8	What is the area of a right triangle with leg lengths 7 and 10?	35	1
9	The number 24 has how many prime divisors?	2	1
10	Find the mean of 12, 13, and 17.	14	1
11	$4^3 = ?$	64	1
12	Express: $\frac{1}{3} + \frac{5}{2}$ as a mixed number.	$2 \frac{5}{6}$	1
13	What is the value of three nickels, seven pennies, two dimes, and three quarters expressed in dollars?	1.17	1
14	$17 \times 9=$	153	1
15	Express $\overline{.4}$ as a reduced fraction.	$4/9$	1
16	What is the perimeter of a square with side length 6.5?	26	1
17	What is the greatest common factor (divisor) of 24 and 84?	12	1
18	What is the perimeter of a nonagon with a side length of 11 units?	99	1
19	What is the hypotenuse of a triangle with legs 6 and 8?	10	1
20	What is the general form of the area of a square, side length $x$ , divided by its perimeter?	$x/4$	1

**Challenge Test**  
**1st Challenge**

School: \_\_\_\_\_

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

Score: \_\_\_\_\_

	Answer	Pts
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**Challenge Test**  
**2nd Challenge**

School: \_\_\_\_\_

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

Score: \_\_\_\_\_

	Answer	Pts
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**Challenge Test**  
**Final Challenge**

School: \_\_\_\_\_

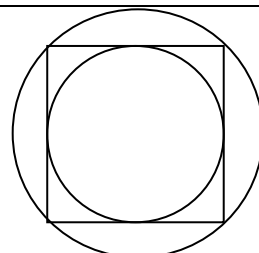
Team #: \_\_\_\_\_

Score: \_\_\_\_\_

	Answer	Pts
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### Challenge Test

1	Which is larger: $11/19$ or $5/9$ ?
2	How many sides does a decagon have?
3	What is $1+2+3+\dots+20$ ?
4	What is the probability of rolling an even number on a standard, six-sided die?
5	$1111^2$
6	What is the area of a triangle with a base of 6 and height of 5?
7	Evaluate: $(4+2^2) \cdot 3 - 4 \cdot \frac{1}{4}$
8	How many two-digit numbers are prime and when the digits are reversed, are still prime?
9	What is the area of trapezoid with bases 8 and 12 and a height of 5?
10	What is the probability of drawing a 7 or a heart in a standard deck of 52 cards?
11	Richard has 7 shirts, 3 pairs of pants, 2 pairs of shoes, and 1 pair of socks. How many different outfits can he make if one outfit consists of 1 shirt, 1 pair of pants, 1 pair of shoes, and 1 pair of socks?
12	How many two-letter permutations can be made using the letters in "RAMSRULE"?
13	What is $35 \times 55$ ?
14	What is the sum of the volume and the surface area of a cube with a side length of 2?
15	Bertha drives her car at 80 miles per hour on the freeway for 2 hours and 15 minutes. How many miles did she drive?
16	What is the average of all possible results from rolling one fair 13-sided die numbered 1 through 13?
17	What is the smallest positive two-digit number that is both a perfect square and a perfect cube?
18	What is the maximum number of times a triangle can intersect a circle?
19	What is the square root of the positive difference between the two distinct two-digit numbers whose digits are three and seven?
20	Two circles are respectively inscribed and circumscribed on a square of perimeter 8 (as shown). What is the difference between the areas of the two circles?



**Challenge Test**  
**KEY**

School: \_\_\_\_\_

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

Score: **KEY**\_\_

	Answer	Pts
1	11/19	1
2	10	1
3	210	1
4	$\frac{1}{2}$	1
5	1234321	1
6	15	1
7	23	1
8	9	1
9	50	1
10	4/13	1
11	42	1
12	43	1
13	1925	1
14	32	1
15	180 (miles)	1
16	7	1
17	64	1
18	6	1
19	6	1
20	$\pi$	1

**Medley Test**  
**#1 Number Sense**

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

	Problem	Answer	Pts
1	If each person in a room gives every other person exactly one high five and 28 high fives occur, how many people are in the room?		
2	What is the smallest positive number divisible by all the integers from 1 to 10?		
3	I am counting from 100 to 500. How many times do I say a number with a seven in it?		
4	I walk my dog every other day. Stephanie goes for a run every three days. Trung plays hopscotch every 5 days. Today we all did our activities. How many weeks until we all do our activities on the same day again? Answer in a mixed number.		
5	My number is 18. What is the sum of all the numbers from my number to 20 times my number inclusive?		

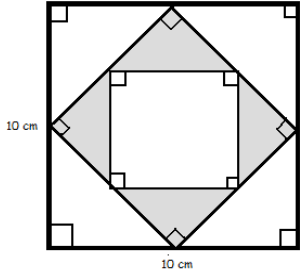
**Medley Test**  
**#2 Algebraic Sense**

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

	Problem	Answer	Pts
1	The number that I am thinking of is twice the value of Alex's number. Alex's number is 7 less than 43. What is the number I am thinking of?		
2	Phil removes 3 red marbles, 7 blue marbles, and 8 green marbles from a bucket of marbles, causing the bucket to drop from 16 pounds to exactly 10 pounds. Joe counts the remaining marbles and there are 6 red marbles, 2 blue marbles, and 4 green marbles still in the bucket. Assuming that all the marbles are identical to each other in every aspect apart from color, what is the weight of the bucket in pounds?		
3	Evaluate: $\frac{10x + 15y + 20z - 200}{5}$ , where $x = 17, y = 7, z = 4$ .		
4	At Mount Rainier High School, 20% of the student population plays basketball, 25% are on the math team, and 45% are in band. If there are 360 students attending Mount Rainier High School, and each student only participates in at most one activity, how many students don't partake in any activities?		
5	A rectangular pen is constructed with a width of $(x+2)$ and a length of $(y+7)$ . What is the ratio of the pen's perimeter to its area ( $P : A$ ), given that $x=5$ and $y = \frac{4}{5}x + 5$ .		

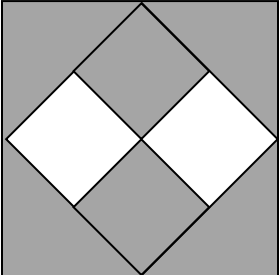
## Medley Test #3 Geometry

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

	Problem	Answer	Pts
1	Find $A+B+C$  A: the perimeter of a square side length 5 B: the length of the missing leg of the right triangle with hypotenuse 15 and leg 9 C: the number of degrees in the measures of the angles in a triangle		
2	What is the area of the shaded region?  		
3	I am paving a pathway around the perimeter of my rectangular garden. The perimeter of my garden without the path is 42 feet with the long side being 15 feet. The rectangular path extends the garden two feet on each side. What is the area of just the pathway?		
4	What is the area of a trapezoid with a height of six, which is also equal to the average of the bases?		
5	Put these in order from largest to smallest: I: area of an equilateral triangle with side length 4 II: area of a square with side length 3 III: area of a rectangle with sides 3 and 4		

**Medley Test**  
**#4 Probability and Statistics**

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

	Problem	Answer	Pts
1	A bag contains 4 white counters, 6 black counters, and 1 green counter. What is the probability of drawing a white counter or a green counter?		
2	If a fair, six-sided die is rolled twice, what is the probability that it will show a prime number both times?		
3	Rob rolls 3 fair six-sided die, one after another, and glances at his results. What is the probability that the side facing Rob is a 3 on each die?		
4	<p>A strange dartboard is a square inscribed inside another larger square with side length 16 cm. by connecting the midpoints of the sides. A dart hits a random part of the board. What is the probability of the dart landing in the white region?</p> 		
5	At Mount Rainier High School, every student is either enrolled in band or Spanish, or both. Forty two students are enrolled in band and sixty six students take Spanish. If one hundred students attend Mount Rainier High School, what is the probability that a student randomly selected is enrolled in only Spanish?		

### Medley Test

School: \_\_\_\_\_

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

Score: **KEY**

#### #1 Numbers

1	8
2	2520
3	76
4	$4\frac{2}{7}$
5	64827

#### #2 Algebraic

1	72
2	6 [pounds ]
3	31
4	36
5	23:56

#### #3 Geometry

1	212
2	25
3	100 [ft <sup>2</sup> ]
4	36 [sq.unit s]
5	III,II, I

#### #4 Prob/Stat

1	5/11
2	$\frac{1}{4}$
3	1/216
4	$\frac{1}{4}$
5	29/50

### Problem Solving Test

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

Problem	4 Points	3 Points	2 Points	1 Point
1				
2				
3				
4				
5				

### Problem Solving Test

1	Butters went shopping and spent \$225 on five items. The prices of the items are one or two digits and use the digits from 1 to 9 exactly once. They are also prime numbers. In dollars, what is the maximum positive difference between the most expensive and cheapest item? Tax does not apply.
2	The four members of The LAPINS (Laziest Aftershave Painters Inter-National Society) decided to split the cost of lunch. If there was one more person, each person would have had to pay three dollars less than they did. In dollars, how much was the total cost of lunch?
3	John, Mike, Jay, and Trixie recently all grew moustaches. John was not the last one to grow a moustache. Mike was not the first or the last one to grow a moustache and grew a moustache before Jay did. Trixie grew a moustache before Mike and after John. Who grew their moustache first?
4	Harry Potter and his friends, Ron, Hermione, and Neville, must fly across the Grand Canyon on Harry's broom. Ron cannot be left alone with Hermione or Neville (he must either be completely alone, with Harry, or with both Hermione and Neville). Harry can only take one other person on the broom with him at a time. Who is the first person and who is the last person Harry takes across the canyon?
5	I add consecutive integers starting at 1. My total is 27,495. What is the last number I added?

### Problem Solving Test

School: \_\_\_\_\_

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

Score: **KEY**

Problem	KEY
1	(\$) 84
2	(\$) 60
3	John
4	Ron and Ron
5	234