Name _____ School Team _____

Event 1: Problem Solving (no calculators) 5th/6th grade Math Meet '09

Part 1: Computations (2 pts. each)

1) ? / 20 = 35/50

2) 56/? = 4

3) 2 x (170 - ?) = 292

4) 17 + 2 x ? = 59

5) 0.28 ÷ ? = 4.00

Event 1: Problem Solving (no calculators) 5th/6th grade Math Meet '09

Part 2: Defining a new operation (3pts. each)

Let's define a new operation: $A <> B = (2 \times A)(A - B)$

For example: $4 <> 3 = (2 \times 4)(4 - 3) = 8(1) = 8$

1) $9 <> 3 = ?$

2) $4 <> 5 = ?$

3) $10 <> 5 = ?$

4) Find a number such that $C <> 4 = 42$

5) Find a number such that $6 <> C = 36$

Name_____ School Team_____

Event 2: Problem Solving (with calculators) 5th/6th grade Math Meet '09

There are many ways to express the measure of time. Here are the following conversions:

1 minute = 60 seconds
1 hour = 60 minutes
1 day = 24 hours
1 week = 7 days
1 normal calendar year = 365 days

Part 1: Time Conversions (2pts. each)

1) How many seconds are in an hour? _____seconds

2) How many minutes are in a day? _____minutes

3) How many hours are in a week? _____hours

4) If Sheila takes a 3 hour drive,
how many minutes is that? _____minutes

5) Jonathon wants to spend 1 ½ weeks up north
this summer, how many hours is that? _____hours

Event 2: Problem Solving (with calculators) 5th/6th grade Math Meet '09

There are many ways to express the measure of time. Here are the following conversions:

1 minute = 60 seconds
1 hour = 60 minutes
1 day = 24 hours
1 week = 7 days
1 normal calendar year = 365 days

Part 2: Adding Time (3pts each)

1) 1 hour + 20 minutes = _____ seconds

2) 4 days + 300 minutes = _____ hours

3) 2 weeks + 2 days + 180 minutes = _____ hours

4) 56 hours + 180 minutes + 3600 seconds = _____ days

5) 23 days + 80 hours - 120 minutes = _____ weeks

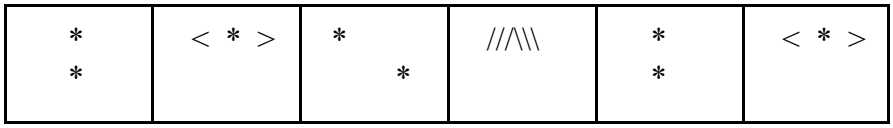
Name_____ School Team_____

Event 3: Logic and Reasoning (with calculators) 5th/6th grade Math Meet '09

Below are two patterns of squares. If repeated, they could go on forever.

Pattern 1:

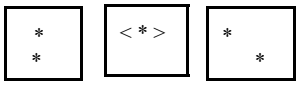
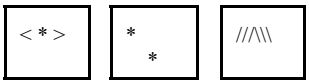
#1 #2 #3 #4 and so on . . .



Pattern 2:

#1 #2 #3 #4 #5 #6 and so on . . .

Part 1: Circle the square that belongs in the numbered position. (2 pts. each)

Square #	Pattern 1	Pattern 2
1) 10		
2) 20		
3) 50		
4) 100		

Event 3: Logic and Reasoning (with calculators) 5th/6th grade Math Meet '09

Now, for Part 2, you will take each pattern from Part 1 and arrange the pattern in a pyramid. Below, you see the two patterns formed into pyramids.

	Pattern 1	Pattern 2
Row #1	* *	A
Row #2	< * > | * *	A | *
Row #3	///\\\ | * * | < * >	! | # | 2
Row #4	* * | ///\\\ | * * | < * >	A | A | * | !

. . .

. . .

. . .

Part 2: Circle the square that belongs at the end of the numbered row. (3 pts. each)

	Row #	Pattern 1	Pattern 2
1)	5	///\\\ | <*> | * *	* | A | #
2)	6	///\\\ | * * | <*>	2 | A | *
3)	10	* * | * * | <*>	A | ! | *
4)	12	* * | ///\\\ | <*>	A | * | 2

Name _____ School Team _____

Event 4: Mental Math (no calculators) 5th/6th grade Math Meet '09

Each answer is worth 1 pt each.

1) _____ 6) _____

2) _____ 7) _____

3) _____ 8) _____

4) _____ 9) _____

5) _____ 10) _____

Example:

PENCILS DOWN

$$(2 + 4) + (7 \times 3)$$

Problem 1: PENCILS DOWN

$$(12 - 4)(12 + 4)$$

Problem 2: PENCILS DOWN

$$\frac{70 + 40 + 30 + 60}{5}$$

Problem 3: PENCILS DOWN

$$8 + 10 + 12 + 14 + 16 + 18$$

Problem 4: PENCILS DOWN

$$10 - 9 + 8 - 7 + 6 - 5$$

Problem 5: PENCILS DOWN

$$3^2 + 4^2 - 5^2$$

Problem 6: PENCILS DOWN

$$(5 - 3)(2 \times 2 + 5 \times 3 + 1)$$

Problem 7: PENCILS DOWN

$$(10 + 12 + 5 + 3 + 8 + 2 + 7) - (3 + 1 + 7 + 5 + 9)$$

Problem 8: PENCILS DOWN

$$\frac{\sqrt{4} + \sqrt{36} + \sqrt{144}}{\sqrt{16} + \sqrt{1}}$$

Problem 9: PENCILS DOWN

$$59 + 43 + 21 + 77 + 16 + 11$$

Problem 10: PENCILS DOWN

$$(3^2 - 2^2) + (6^2 - 5^2)$$

Name: _____ School Team _____

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 1: Shopping with percent(25 points)

Solve the following percent problems. Read carefully!

1) What is 10% of 40% of $328.00?

_____dollars
(4 pts)

2) Jimmy started with $200.00. He spent half of it on clothes. He spent 40% of what he had left. How much did he spend all together?

_____dollars
(5 pts)

3) Carrie is planning her shopping outing. She would like to spend 30% of her money on music, 60% on clothes and 10% on lunch. If she has $240.00, how much can she spend on each?

Music _____dollars (2 pts)

Clothes _____dollars (2 pts)

Lunch _____dollars (2 pts)

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 1:Shopping with Percent (25 points)

4) A shirt is 30% off of its original price. How much can you buy it for if it originally cost $64.00?

_____dollars
(5 pts)

5) Mia found out that a big-screen TV is marked up 70%. This means it is sold to the buyer at 70% more than what the store bought it for. If the store got it for $600.00, how much would Mia pay for it?

_____dollars
(5 pts)

Name _____ School Team _____

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 2: Probability (25 points)

Solve the following probability problems. (1 pt each on this page)

1) Before going shopping, you grab a drink. Your choices are 6 bottles of water, 8 bottles of Gaterade, 3 cans of Pepsi and 3 cans of Mountain Dew. What are the chances that you pick . . .

Water: _____

A can of Pepsi: _____

A bottle: _____

A Mountain Dew given that you grab a can: _____

A can of pop: _____

2) When selecting a dessert when shopping at the mall, your choices in front of you are 6 kinds of cookies, 4 flavors of shakes, 8 pieces of pie, and 2 kinds of hot cocoa. If you pick out a random dessert, what are the chances that you pick . . .

A cookie: _____

A shake: _____

A piece of pie: _____

A cookie, given that you did not include shakes in your choices :_____

Event 5: Team Problems (with Calculators) 5th/6th grade Math Meet '09

Problem 2: Probability

Solve the following probability problems. (2 pts. each on this page)

3) You randomly grab a drink and a food item to buy. Remember that your choices are 6 kinds of cookies, 4 flavors of shakes, 8 pieces of pie, and 2 kinds of hot cocoa. What are the chances that you pick. . .

A cookie and a hot cocoa: _____

A cookie and a shake: _____

A piece of pie and a shake: _____

4) When you roll a fair, six-sided die, what are the odds of rolling . . .

2 even numbers in a row: _____

A 3, then a 4, then a 5 (in that order): _____

A 3, 4, 5 in any order: _____

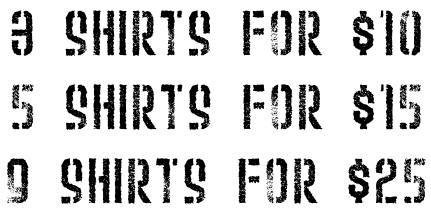
A 1, 3, 5 (in that order), given that
you rolled three odds in a row:_____

A 1, 3, 5 (in any order), given that
you rolled three odds in a row: _____

Event 5: Team Problems (with Calculators) 5th/6th grade Math Meet '09

Problem 3: (20 points)

When shopping at the mall, you come across a great sale table. When you finally elbow your way to the front of the table, you see the sign that is advertising the sale:



Note that by using the same amount of money you could come up with different total number of shirts. For example, if I spend $30, I could get 9 shirts from the first deal. If I spend $30, I could get 10 shirts on the 2nd deal.

Part 1: Combination of deals (2 pt. each)

Based off the sign, how many shirts could you purchase for each dollar amount?

1) You spend $10 + $10 = _____ shirts

2) You spend $10 + $15 = _____ shirts

3) You spend $25 + $10 + $10 = _____ shirts

4) You spend $10 + $15 + $15 = _____ shirts

Part 2: Getting the most for your money. (4 pts. each, no partical credit)

Given the total dollar amount, how should you spend it to get the MOST shirts for your money?

5) $60 _____ + _____ + _____ = _____
$10 $15 $25 t-shirts

6) $80 _____ + _____ + _____ = _____
$10 $15 $25 t-shirts

7) $105 _____ + _____ + _____ = _____
$10 $15 $25 t-shirts

Name _____ School Team _____

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 4: Function Machines (30 points)

Part 1: Function Machine #1 (2 pts. each)

Here is a function machine. You need to determine what they do so that you can fill in the missing input or output.

	2	→ Function Machine 1 →		7
	3	→ Function Machine 1 →		9
	5	→ Function Machine 1 →		13
1)	9	→ Function Machine 1 →		?
2)	16	→ Function Machine 1 →		?
3)	?	→ Function Machine 1 →		61
4)	?	→ Function Machine 1 →		119

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 4: Function Machines (30 points)

Part 2: Function Machine #2 (2 pts. each)

	12	→ Function Machine 2 →	21
	43	→ Function Machine 2 →	34
	8	→ Function Machine 2 →	80
1)	17	→ Function Machine 2 →	?
2)	23	→ Function Machine 2 →	?
3)	1	→ Function Machine 2 →	?
4)	?	→ Function Machine 2 →	78

Event 5: Team Problems (with calculators) 5th/6th grade Math Meet '09

Problem 4: Function Machines (30 points)

Part 3: Function Machine #3

	2	→ Function Machine 3 →	4	
	3	→ Function Machine 3 →	9	
	4	→ Function Machine 3 →	16	
	5	→ Function Machine 3 →	25	
1)	6	→ Function Machine 3 →	?	(3 pts)
2)	9	→ Function Machine 3 →	?	(3 pts)
3)	?	→ Function Machine 3 →	144	(4 pts)
4)	?	→ Function Machine 3 →	256	(4 pts)