Math

& 6th Grade

Please keep these practice tests in a file for reuse in upcoming years!

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School_	
Nam	
e	

Event 1

Computation (Calculators not allowed.)

18 Minutes

Directions: Put each answer in the space provided. If an answer is a fraction, give it in reduced form; if it is a decimal, give it correctly to two decimal places.

a)
$$(8/56) \times _{---} = 2.$$
 (2)

(2 points)

(2 points)

c)
$$(8/9)$$
 / = 4/3.

(2 points)

d)
$$18 \times .2 =$$
 _

(2 points)

e) (2 points)

$$1+3+5+7+9+11+13+15+17+19-18-16-14-12-10-8-6-4-2=$$

Mega Math Meet Whitewater TAC Network	May 2002	Name
		Team
Event 1	Computation (Cont.)	12 Minutes
2. We will def	We will define the persistence of a number this way:	7:
Take a number, fo and get 486. Now together give 18; a the results as a seq before you get to a	Take a number, for example 969. Now multiply the digits together: so you multiply 9 x 6 x and get 486. Now multiply those digits together and you get 192; then those digits multiplied together give 18; and finally multiplying the digits of 18 together gives 8. Thus we could write the results as a sequence: 969, 486, 192, 18, 8. Since there are four multiplications that occur before you get to a single digit number, we say that 969 has persistence four.	together: so you multiply 9 x 6 get 192; then those digits multiplied gether gives 8. Thus we could wroware four multiplications that occurs persistence four.
Four each of the gi gives a single digit	Four each of the given numbers, show the sequence of successive multiplications that finally gives a single digit. (The number of spaces provided may be more than you need.)	cessive multiplications that final be more than you need.)
a. (3 pts)	481,	•
	Thus 481 has persistence	
b. (3 pts)	986,,	
	Thus 986 has persistence	
c. (3 pts)	707,	•
	Thus 707 has persistence	
d. (3 pts)	What is the largest number with persistence zero?	stence zero?
	Answer:	
	Total point	Total points (22 possible)

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School

Event 2

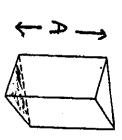
Volumes of Prisms (Calculators allowed.)

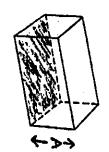
Name

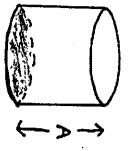
12 Minutes

Below you see a triangular prism, a rectangular prism, and a circular prism, also called a cylinder. A prism is a three-dimensional object whose base and top are identical figures joined by straight sides.

shaded figure which forms the bottom of the prism. In the sketches, A stands for the <u>altitude</u> of the prism; so A measures how tall the prism is. The <u>base</u> is the







Here is the formula for the volume of a prism:

volume of a prism Iŧ area of the base × altitude.

Also recall these basic formulas for area:

Area of a rectangle 1 length × width;

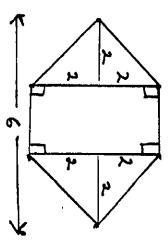
Area of a triangle II 7,7 × base × height;

Area of a circle 11 Ħ × × radius.

You may use Ħ H 3.14 in your calculations

-Find the area of the hexagon with dimensions as given. Assume dimensions are inches.

(4 points)



(square inches)

Name_

,		
7		
3		

Event 2

Volumes of Prisms (Cont.)

12 Minutes

5 the candle will be a hexagonal prism! What is its volume? A 12-inch high candle is to be made with the hexagon from Problem 1 as a base. In other words, (4 points)

Answer:____(cubic inches)

- 'n make a 5-inch high round candle (a cylinder). What should the radius of the base be? answer that is closest. A candle maker has melted down an old candle and has 200 cubic inches of wax. She wants to Circle the (4 points)
- . 2.25 inches
- b. 3.55 inches
- c. 4.15 inches
- 4. holder? Circle the answer that is closest. inches deep and has a 2-inch radius. What is the volume in cubic inches of the plastic candle below.) A shop sells a plastic candle holder that is a cube with a hole in it for the candle. (See picture The cube is 4 x 4 x 4 (each dimension is in inches) and the hole for the candle is 2 (4 points)
- 56 cubic inches

- 47 cubic inches
- c. 39 cubic inches



- 'n radius of each of the new candles must be identical cylindrical candles. If each of the new candles is also to be 10 inches high, then the The candle maker wants to melt down a 10-inch high cylindrical candle and then make four new (circle your choice of answer) (4 points)
- a. ½ of the radius of the original candle;
- b. 1/4 of the radius of the original candle;
- c. 1/16 of the radius of the original candle

Total points _____(20 possible)

	sponsored by Whitewater TAG Network	l by Network	
School		Name	
Event 3 Me	Means and Medians (Calculators are allowed.)		12 Minutes
We are often interested in different students could give	We are often interested in collections of numbers, or data. different students could give the following set of numbers:	We are often interested in collections of numbers, or data. For example, the heights, in inches, of 7 different students could give the following set of numbers:	%, of 7
{41, 42, 42, 42, 46, 47, 49}	47, 49}	•	
The median number in the highest. Or we could expla above, then there are exact median.	set is the middle number whain it this way: if the numberly as many numbers to the left	The <u>median</u> number in the set is the middle number when the numbers are arranged from lowest to highest. Or we could explain it this way: if the numbers are listed in order from left to right, as they are above, then there are exactly as many numbers to the left of the median as there are to the right of the median.	vest to , as they are ht of the
In the set above, the media order.	n number is 42, since it is th	In the set above, the median number is 42, since it is the 4 th number in a list of 7 numbers arranged in order.	anged in
1. What is the median	What is the median of the list of 11 numbers in set A?	set A? (2 pts)	
$A = \{1, 1, 3, 3, 4, 5, 5, 5, 5, 5, 8\}$	5, 5, 5, 5, 5, 8}	Answer:	
2. Suppose there is a s of each you have:	et, B, of 101 numbers, each	Suppose there is a set, B, of 101 numbers, each number is either 1, or 3, or 4, and this is how many of each you have: (2 pts)	is how many
Set B has twenty 1's	Set B has twenty 1's, fifty 3's, and thirty-one 4's.	**	
What is the median of set B?		Answer:	

ω

(2 pts)

the number 20 to each of them. Call this new set, Set C. What is the median number in Set C? Someone makes a new set of numbers by taking the numbers in Set A (see problem 1) and adding

Answer:

May 2002

Name_

Team___

Event 3

Means and Medians (Cont.)

12 Minutes

calculate the mean of a set of numbers, add all the numbers up and then divide by the number of numbers you added. So, for example, in the set of heights of students We are also interested in the mean of a set of numbers; this is the same as the average of the numbers. To

{41, 42, 42, 42, 46, 47, 49}, the mean would be found this way:

(41+42+42+42+46+47+49) / 7 = 44.14, to two decimal places.

4. Find the mean of the set A of Problem 1.

(2 pts)

Answer:_____(two decimal places)

5. Find the mean of the set B of Problem 2.

(2 pts)

Answer: (two decimal places)

6. Find a number, N, so that the set of numbers

(3 pts)

{41, 42, 42, 42, 46, 47, 49, N} has mean exactly equal to 47.

Answer: (two decimal places)

Total points _____(13 possible)

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SchoolName	Event 4 Mental Math (Calculators not allowed.) 12 Minut	Answers (2 points each)	1)	2)		Answers Only 4)	No Scratch Work 5)	Permitted	8)	9)	10)
	12 Minutes	j)									

Total points

_ (20 possible)

5.
$$7 + (9 \div 9) \div 8 =$$

6.
$$\frac{3 \times 3 \times 3}{9 + 9 + 9} = \frac{3 \times 3 \times 3}{9 \times 9 \times 9}$$
 (reduce to lowest terms)

7. 9
$$(6 \times 100) =$$

8.
$$15\% \text{ of } 300 =$$

10.
$$2+1+3+5-9+7=$$

	sponsored by Whitewater TAG Network	twork
School		Name
Event 5	Team Problem Solving	20 minutes
SHAPES AND ST	SHAPES AND STANDARD FILLINGS	
A shape is a collec	A shape is a collection of boxes. Here is an example of a shape:	shape:
		,
If a shape has n boxes, then a stanumbers 1, 2, 3,, n such that:	xes, then a <u>standard filling</u> of the shape i ., n such that:	If a shape has n boxes, then a <u>standard filling</u> of the shape is a filling of the boxes with each of the numbers 1, 2, 3,, n such that:
	,	· ·

- * Numbers in boxes increase as you go from left to right in each row, and
- * Numbers in boxes increase as you go from top to bottom in each column.

Examples:

Here are two standard fillings of the same shape:

			ì
	4	2	
,			1
			ď
			1
4	2	1	9

Here is an example of a filling that is <u>not</u> standard. (Make sure you see why it isn't standard!)

2	5	3
	4	1

C In all, there are two different standard fillings of this shape:

Here are the two possible standard fillings for the given shape:

ယ	1
4	2

2	1
4	ß

Mega Math Meet	eet	May 2002	Name	e
Whitewater TAG Network	AG Network		Team	
Event 5	Team Proble	Team Problem Solving (Cont.)	2	20 minutes
		PROBLEMS	™	
1. There are the empty	There are exactly thee standard filli the empty shapes that are provided.	d fillings of the shape belo ided. (10 points)	e below. Write the pints)	There are exactly thee standard fillings of the shape below. Write the different standard fillings in the empty shapes that are provided. (10 points)
·				,
2. There are for you. 1 3 2 5	There are exactly five standard fillings of the shape below. One of the standard fill for you. Write the remaining four different standard fillings in the empty shapes the standard fillings in the e	d fillings of the shape four different standar	below. One of the fillings in the en	There are exactly five standard fillings of the shape below. One of the standard fillings is given for you. Write the remaining four different standard fillings in the empty shapes that are provided.
4				(10 points)
In problems 3-5, fillings of the given and try many different standard fillings	In problems 3-5, you are given a shape for each problem. Find the total number of differentillings of the given shape. On scratch paper you will probably have to draw many copies and try many different fillings until you are sure that you have found the correct total num standard fillings of the given shape.	e for each problem. h paper you will prol ou are sure that you l	Find the total nun bably have to drav nave found the cor	In problems 3-5, you are given a shape for each problem. Find the total number of different standard fillings of the given shape. On scratch paper you will probably have to draw many copies of the shape and try many different fillings until you are sure that you have found the correct total number of different standard fillings of the given shape.
3. (10 points)	s)			
How many differ	How many different standard fillings are there of this shape?:	are there of this shap	be?:	

Mega	Mega Math Meet May 2002	Name
Whit	Network	Team
Event 5	t 5 Team Problem Solving (Cont.)	20 minutes
4.	(10 points)	
	How many different standard fillings are there of this shape?:	is shape?:
.	(10 points)	
	How many different standard fillings are there of this shape?:	is shape?:
6.	(10 points) Consider the following shape:	
	Circle the correct answer:	
	The number of standard fillings of this shape is	
	 a. between 0 and 5. b. between 6 and 10. c. between 11 and 15. d. 16 or orester 	

Total Points:

(60 Possible)

Whitewater TAG Netv	Mega Math Meet
Network	

May 2002

Name.

Team

Event 5

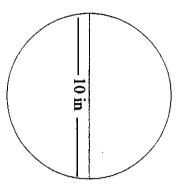
Team Problem Solving (Cont.)

20 minutes

MORE PIZZA THAN YOU'D CARE TO EAT

radius. a circle is the distance between the center and a point on the circle. The diameter of a circle is twice the The term "n-inch pizza" describes a <u>circular</u> pizza with a diameter of n inches. Recall that: The <u>radius</u> of

Example:



A 10-inch pizza

The area of a circle with radius r is $A = \pi \times r \times r$, where π is a special number that is approximately equal to 3.14: $\pi \approx 3.14$.

The area of a rectangle with length L and width W is A11 $L \times W$

PROBLEMS

- -Find the area of a 10-inch pizza: square inches (round to one decimal place)
 - (5 points)
- circular pizza with the same area as your friend's pizza. You should make a Your friend has a rectangular pizza 8 inches wide and 14 inches long. You want to make a (5 points)

'n

- inch pizza. (Round to the nearest inch.)
- ယ You buy a 16-inch pizza for \$13.99. What is the cost per square inch of pizza?

(5 points)

cents per square inch. (Round to the nearest cent.)

Is it a better deal to buy a 12-inch pizza for \$9.99 or a 16-inch pizza for \$13.99?

4.

(10 points)

It is better to buy the inch pizza.

Mega N Whitew Event 5	lath Mater 7	14-inch pizza costs 10 co	A 14-inch pizza costs 10 cents a. What is the total cost?		b. The width of a rectangular pizza is 6 inches. Find the length if the rectangular pizza is to have the same area as the 14-inch pizza. (10 points)	1	c.			A circular pizza costs \$12.99 and costs 10 cents per square inch. The radius of the pizza is
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TOTAL POINTS:

_ (60 POSSIBLE)

Name_

Team_

Event 5

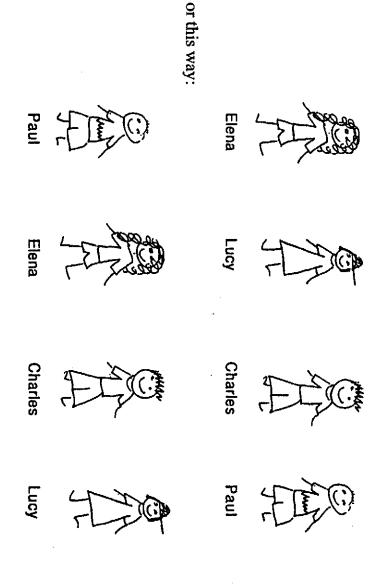
Team Problem Solving (Cont.)

20 minutes

LINE ARRANGEMENTS

line. You get a camera for your birthday and you decide to take a picture of your friends standing in a

Suppose you have four friends you want to take a picture of. You could line them up this



or some other way.

How many different ways could you line up your four friends?

(Go to next page.)

	4. Ho		3. Ho		2. Ho		ċ.		ġ.		. a	Event 5	Whitewa	Mega Math Meet
Answer:	How many ways could you line up n friends?	Answer:	How many ways could you line up six friends?	Answer:	How many ways could you line up five friends?	Answer:	How many total ways of arranging four friends in a line?	Answer:	Now, how many ways are there if Paul is at the furthest left?	Answer:	First, how many ways are there if Elena is at the furthest left? Obviously, the first arrangement shown is one such way, but how many total arrangements are there with Elena at the furthest left?	Team Problem Solving (Cont.)	Whitewater TAG Network	ath Meet May 2002
(10 points)		(10 points)		(10 points)		(10 points)	a line?	(5 points)	rthest left?	(5 points)	urthest left? h way, but how many total arrangements	20 minutes	Team	Name

_ TOTAL POINTS

and

$$% + % + % = 12$$

What is + * = _____

$$3 - 2 + 5 - 4 + 2 + 2 = ___$$

$$5420 + 50 + 300 =$$

$$25\%$$
 of $300 = ____$

$$7 + (9 \div 9) \div 8 =$$

$$\frac{3 \times 3 \times 3}{9 + 9 + 9} = \underline{\hspace{1cm}}$$

(reduce to lowest terms)

$$9 (6 \times 100) =$$

$$15\%$$
 of $300 = ____$

9.

One thousand is ten sets of _____

$$2+1+3+5-9+7=$$

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School Bey

Name_

Event 1

Computation (Calculators not allowed.)

18 Minutes

- Directions: reduced form; if it is a decimal, give it correctly to two decimal places. Put each answer in the space provided. If an answer is a fraction, give it in
- a) $(8/56) \times 14 = 2$.

(2 points)

b) $(1.02/.17) \times 6 = 3/0$

(2 points)

 $(8/9) / \frac{\alpha/3}{3} = 4/3.$

C

(2 points)

d) $18 \times .2 = ...$

 $- \times 9 \times (.1)$.

(2 points)

e) (2 points)

$$1+3+5+7+9+11+13+15+17+19-18-16-14-12-10-8-6-4-2=$$

Name Key
Team

Event 1

Computation (Cont.)

12 Minutes

? We will define the persistence of a number this way:

the results as a sequence: 969, 486, 192, 18, 8. Since there are four multiplications that occur together give 18; and finally multiplying the digits of 18 together gives 8. Thus we could write and get 486. Now multiply those digits together and you get 192; then those digits multiplied before you get to a single digit number, we say that 969 has persistence four Take a number, for example 969. Now multiply the digits together: so you multiply 9 9

Four each of the given numbers, show the sequence of successive multiplications that finally gives a single digit. (The number of spaces provided may be more than you need.)

a. (3 pts) 481, 32. 6.

Thus 481 has persistence 2

b. (3 pts) 986, <u>432</u>, <u>24</u>, 8

Thus 986 has persistence

c. (3 pts) 707, O _______.

Thus 707 has persistence _______.

d. (3 pts) What is the <u>largest</u> number with persistence zero?

Answer:

Total points (22 possible)_

May 2002

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School

Name.

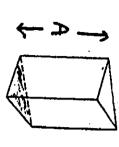
Event 2

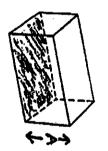
Volumes of Prisms (Calculators allowed.)

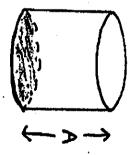
12 Minutes

Below you see a triangular prism, a rectangular prism, and a circular prism, also called a cylinder. A prism is a three-dimensional object whose base and top are identical figures joined by straight sides.

shaded figure which forms the bottom of the prism. In the sketches, A stands for the <u>altitude</u> of the prism; so A measures how tall the prism is. The <u>base</u> is the







Here is the formula for the volume of a prism:

volume of a prism I area of the base × altitude

Also recall these basic formulas for area:

Area of a rectangle II length × width;

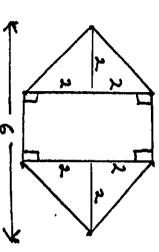
Area of a triangle Ш 1/2 × base × height;

Area of a circle Ħ × radius × radius.

You may use Ħ 3.14 in your calculations.

Find the area of the hexagon with dimensions as given. Assume dimensions are inches.

(4 points)



Answer: (square inches)

Name_

]		
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Event 2

Volumes of Prisms (Cont.)

12 Minutes

5 the candle will be a hexagonal prism! What is its volume? A 12-inch high candle is to be made with the hexagon from Problem 1 as a base. In other words, (4 points)

Answer: 92 (cubic inches)

- ယ answer that is closest. make a 5-inch high round candle (a cylinder). What should the radius of the base be? Circle the A candle maker has melted down an old candle and has 200 cubic inches of wax. She wants to (4 points)
- . 2.25 inches
- $\left(b.\ 3\right)$ 55 inch
- . 4.15 inches
- 4. inches deep and has a 2-inch radius. What is the volume in cubic inches of the plastic candle holder? Circle the answer that is closest. A shop sells a plastic candle holder that is a cube with a hole in it for the candle. The cube is 4 x 4 x 4 (each dimension is in inches) and the hole for the candle is 2 (See picture (4 points)
- 56 cubic inches
- b. 47 cubic inches
- (c. 39 cubic inches



- Ş radius of each of the new candles must be (circle your choice of answer) identical cylindrical candles. If each of the new candles is also to be 10 inches high, then the The candle maker wants to melt down a 10-inch high cylindrical candle and then make four new (4 points)
- وم

1/2 of the radius of the original candle;

- 1/4 of the radius of the original candle;
- c. 1/16 of the radius of the original candle

Total points _____(20 possible)

School Bey		
Name	sponsored by Whitewater TAG Network	May 2002

Event 3 Means and Medians (Calculators are allowed.)

12 Minutes

different students could give the following set of numbers: We are often interested in collections of numbers, or data. For example, the heights, in inches, of 7

above, then there are exactly as many numbers to the left of the median as there are to the right of the highest. Or we could explain it this way: if the numbers are listed in order from left to right, as they are The median number in the set is the middle number when the numbers are arranged from lowest to

order. In the set above, the median number is 42, since it is the 4th number in a list of 7 numbers arranged in

What is the median of the list of 11 numbers in set A?

(2 pts)

 $A = \{1, 1, 3, 3, 4, 5, 5, 5, 5, 5, 8\}$

Answer:

5 Suppose there is a set, B, of 101 numbers, each number is either 1, or 3, or 4, and this is how many of each you have: (2 pts)

Set B has twenty 1's, fifty 3's, and thirty-one 4's

What is the median of set B?

ယ

Answer:

(2 pts) the number 20 to each of them. Call this new set, Set C. What is the median number in Set C? Someone makes a new set of numbers by taking the numbers in Set A (see problem 1) and adding

Answer:

Name__

Team_

Event 3

Means and Medians (Cont.)

12 Minutes

you added. So, for example, in the set of heights of students calculate the mean of a set of numbers, add all the numbers up and then divide by the number of numbers We are also interested in the mean of a set of numbers; this is the same as the average of the numbers.

{41, 42, 42, 42, 46, 47, 49}, the mean would be found this way:

(41 + 42 + 42 + 42 + 46 + 47 + 49) / 744.14, to two decimal places.

4. Find the mean of the set A of Problem 1.

(2 pts)

Answer: 4.09 (two decimal places)

5. Find the mean of the set B of Problem 2.

(2 pts)

Answer: 2, 41 (two decimal places)

6. Find a number, N, so that the set of numbers

(3 pts)

{41, 42, 42, 42, 46, 47, 49, N} has mean exactly equal to 47.

Answer: (a) (two decimal places)

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School_ Event 4

Mental Math (Calculators not allowed.)

12 Minutes

Name_

(2 points each) Answers **14** + **4** 0

_

No Scratch Work

Permitted

Answers Only

Total points (20 possible)

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Event 5	school
Team Problem Solving	hey
	Name_

30

20 minutes

SHAPES AND STANDARD FILLINGS

A shape is a collection of boxes. Here is an example of a shape:



If a shape has n boxes, then a <u>standard filling</u> of the shape is a filling of the boxes with each of the numbers 1, 2, 3, ..., n such that:

- * Numbers in boxes increase as you go from left to right in each row, and
- * Numbers in boxes increase as you go from top to bottom in each column.

Examples:

A) Here are two standard fillings of the same shape:

	4	2	
			0
			9
4	2	1	mond immge or are some
			8

W

S

 \mathbb{B} Here is an example of a filling that is <u>not</u> standard. (Make sure you see why it isn't standard!)

	-	
2		ယ
	4	1
·		

G In all, there are two different standard fillings of this shape:

2	1 2 1	Here are the two possible star
	ن ا	Here are the two possible standard fillings for the given shape

Name_

,
1
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l
l
l
l

Team

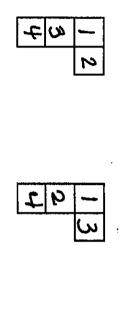
Event 5

Team Problem Solving (Cont.)

20 minutes

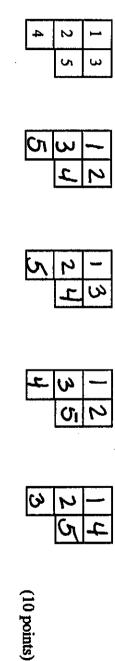
PROBLEMS

the empty shapes that are provided. There are exactly thee standard fillings of the shape below. Write the different standard fillings in (10 points)





Ņ for you. There are exactly five standard fillings of the shape below. One of the standard fillings is given Write the remaining four different standard fillings in the empty shapes that are provided.



standard fillings of the given shape. fillings of the given shape. On scratch paper you will probably have to draw many copies of the shape and try many different fillings until you are sure that you have found the correct total number of different In problems 3-5, you are given a shape for each problem. Find the total number of different standard

(10 points)

	4
	\dashv
-	\dashv
	_

How many different standard fillings are there of this shape?:

0Ne

Mega Whit	Mega Math Meet Whitewater TAG Network	Name
Event 5	t 5 Team Problem Solving (Cont.)	20 minutes
4.	(10 points)	
	How many different standard fillings are there of this shape?:	10
55	(10 points) How many different standard fillings are there of this shape?:	S
6.	(10 points) Consider the following shape:	
	Circle the correct answer: The number of standard fillings of this shape is	
	a. between 0 and 5. b. between 6 and 10. c. between 11 and 15. d. 16 or greater.	

Total Points:

(60 Possible)

May 2002

Team

Event 5

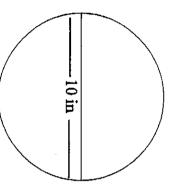
Team Problem Solving (Cont.)

20 minutes

MORE PIZZA THAN YOU'D CARE TO EAT

a circle is the distance between the center and a point on the circle. The diameter of a circle is twice the The term "n-inch pizza" describes a <u>circular</u> pizza with a diameter of n inches. Recall that: The <u>radius</u> of

Example:



A 10-inch pizza

approximately equal to 3.14: π The area of a circle with radius r is $A = \pi \times r \times r$, where π is a special number that is ≈ 3.14 .

The area of a rectangle with length L and width W is A0 Ľ × ₹

PROBLEMS

Find the area of a 10-inch pizza:

(5 points)

- square inches (round to one decimal place)
- ? Your friend has a rectangular pizza 8 inches wide and 14 inches long. You want to make a circular pizza with the same area as your friend's pizza. You should make a (5 You should make a (5 points)
- inch pizza. (Round to the nearest inch.)

(5 points)

You buy a 16-inch pizza for \$13.99. What is the cost per square inch of pizza? cents per square inch. (Round to the nearest cent.)

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Is it a better deal to buy a 12-inch pizza for \$9.99 or a 16-inch pizza for \$13.99?

4

(10 points)

It is better to buy the inch pizza

Event 5

Team Problem Solving (Cont.)

20 minutes

	r TAG Network	h Meet
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	•	May 2002
Team		Name

A 14-inch pizza costs 10 cents per square inch.
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6 A circular pizza costs \$12.99 and costs 10 cents per square inch. The radius of the pizza is inches (Round to the nearest inch.) (10 points)

inches (Round to the nearest inch.)

TOTAL POINTS: (60 POSSIBLE)

Name Ku

Team

Event 5

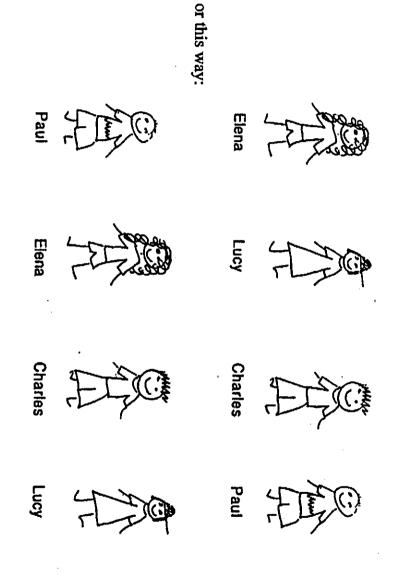
Team Problem Solving (Cont.)

20 minutes

LINE ARRANGEMENTS

line. You get a camera for your birthday and you decide to take a picture of your friends standing in a

Suppose you have four friends you want to take a picture of. You could line them up this



or some other way.

How many different ways could you line up your four friends?

(Go to next page.)

Mega Math Meet Whitewater TAG	Mega Math Meet Whitewater TAG Network	Name
	I LAG INCIMULA	Team
Event 5	Team Problem Solving (Cont.)	20 minutes
1. a.	First, how many ways are there if Elena is at the furthest left? Obviously, the first arrangement shown is one such way, but how many total arrangements are there with Elena at the furthest left?	<u>rthest left?</u> 1 way, but how many total arrangements
	Answer:	6 (5 points)
Ģ .	Now, how many ways are there if Paul is at the furthest left?	hest left?
	Answer:	(5 points)
Ċ	How many total ways of arranging four friends in a line?	line?
	Answer:	24 (10 points)
2. How r	How many ways could you line up five friends?	
	Answer:	120 (10 points)
}. How n	How many ways could you line up six friends?	
	Answer:	720 (10 points)
. How n	How many ways could you line up n friends?	
	Answer:	n / Xpoints)

60 possible