Kansas City Area Teachers of Mathematics
2018 KCATM Contest

Mathletics

Grade 4

Instructions:

- Do **NOT** turn this page until instructed to do so.
- WRITE YOUR **TEAM NUMBER** AND **SCHOOL NAME** ON THE LINE PROVIDED ON THE FRONT OF EACH SHEET EACH TIME YOU BEGIN A NEW PROBLEM.
- **You will want to use a calculator on this test, but NO cell phones calculators can be used!**
- Blank scratch paper can be used. Please do **NOT** write on the team number card, as they are reused each year.
- You may **not** use rulers, protractors or other measurement devices on this test.

Problems # 1-3

This is a relay problem.

Team Number: _____ **School:** _____

Students: _____

_____

_____

Problems 1-3 *(3 minutes, 3 points)*

1. Tima ran 3/4 of a mile and then stopped.
   Huganda ran 1/8 mile and then stopped.
   Perla ran twice as far as Huganda and then stopped.

   What is the total distance Tima, Huganda, and Perla traveled? Please leave your answer in a proper fraction or in mixed number form if it is improper.

Answer: _____

2. Round the answer from #1 to the nearest whole number to represent the age of your youngest sister. Your oldest sister is eleven more than 4 times the age of your youngest sister. How old is your oldest sister?

Answer: _____

3. Use the answer from #2 to be the number of friends going skating. If the cost of a ticket is $6 per person, what is the total cost for skating?

Answer: _____

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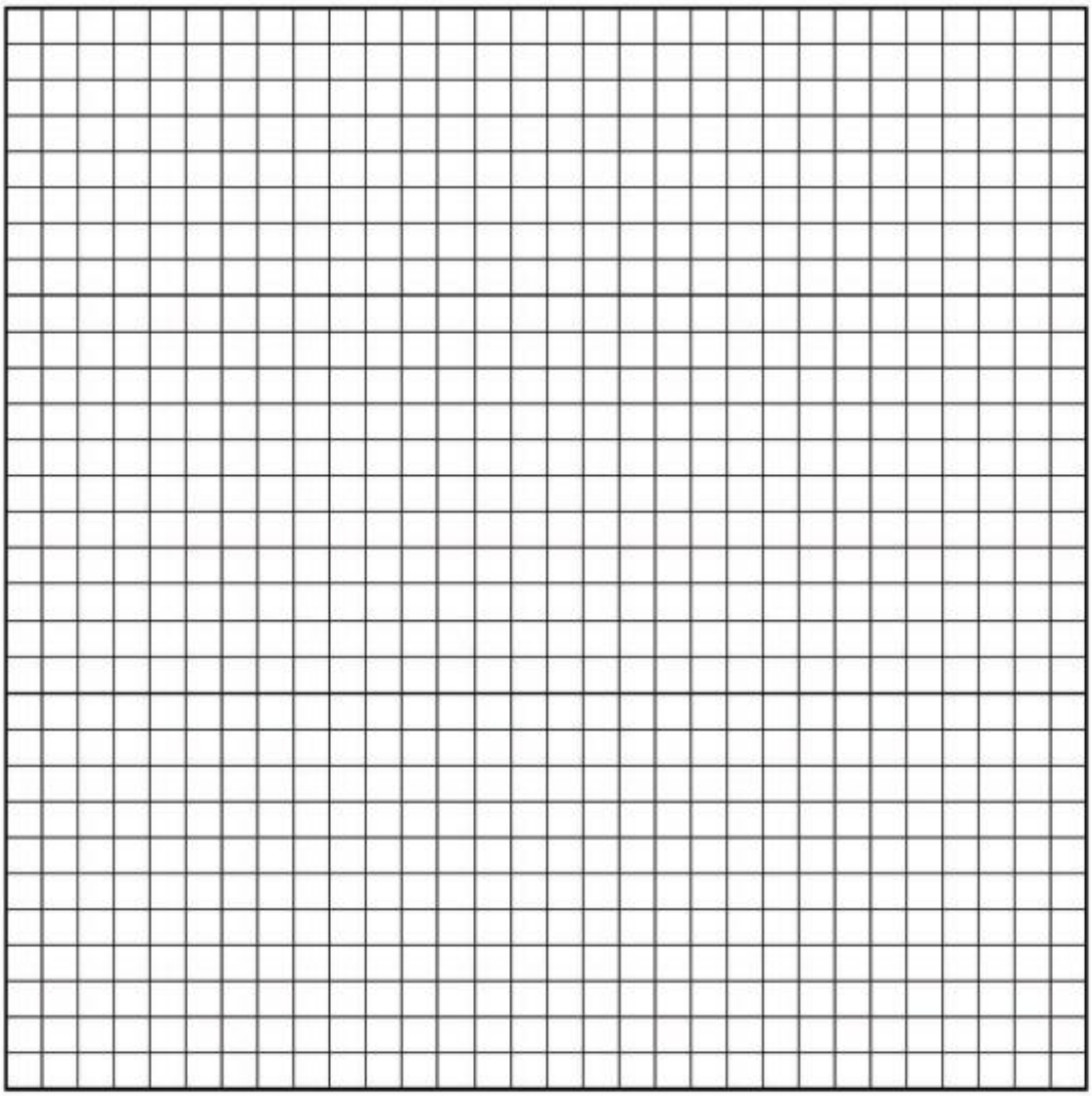
Problem # 4

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 4 *(2 points, 2 minutes)*

You are given the task of coming up with the dimensions of a rectangle with the largest possible area that has a perimeter of 24 inches. The grid may help you draw sample rectangles to help your team answer the question → **What are the dimensions that give you the largest area?**



ANSWER: _____in. by _____in.

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Problem # 5

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 5 *(2 points, 2 minutes)*

Answer all three questions for the three points.

Your school cafeteria served 3,457 slices of pizza last year and 2,984 slices of pizza this year.

1. **How many total slices of pizza were served in these 2 years?**

Answer: _____

2. **How many more slices of pizza did they serve last year than this year?**

Answer: _____

3. **The following is a graph of the number of pizza slices your school served the first 4 months of last year. Complete the last column of data to help you find the total number of slices served.**

Slices of Pizza Sold Each Month		
Month	Pizza Slices Sold	Total for the Month
a January		
b February		
c March		
d April		

Key  = 24 slices

Answer: _____

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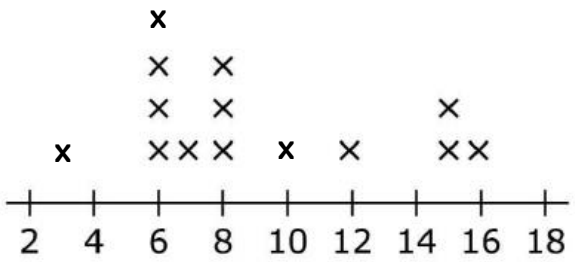
Problem # 6

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 6 *(3 minutes, 3 points)*

The following graph shows the ages of first cousins in one family. What is the mean (average) age, the median age, and the mode of the ages of the first cousins?



ANSWERS: Mean _____

Median _____

Mode _____

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Problem # 7

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 7 *(2 minutes, 2 points)*

William and Juanita each have a pencil bag filled with pencils. William's bag has a total of 5 pencils, two of them are sharpened. Juanita has a bag with a total of 10 pencils. The fraction of sharpened pencils is the same for both William and Juanita. Sketch a picture of the contents of each pencil bag to help you determine the fraction of sharpened and the fraction of unsharpened pencils that both William and Juanita have.

William's Bag:

Juanita's Bag:

ANSWERS:

William's Fractions:

Sharpened Pencils: _____/ 5

Un-sharpened Pencils: _____/ 5

Juanita's Fractions:

Sharpened Pencils: _____/ 10

Un-sharpened Pencils: _____/ 10

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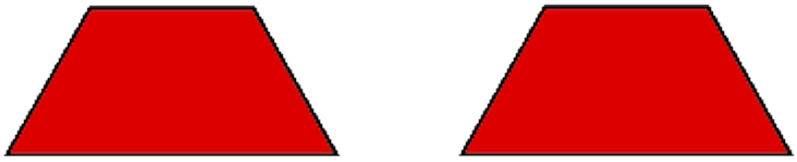
Problem # 8

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 8 *(2 points, 2 minutes)*

One trapezoid represents half of a shape. Use the two trapezoids to find the complete shape that has 6 lines of symmetry. Sketch your final figure with the 6 lines of symmetry in your answer.



ANSWER:

Draw the complete shape below with the 6 lines of symmetry.

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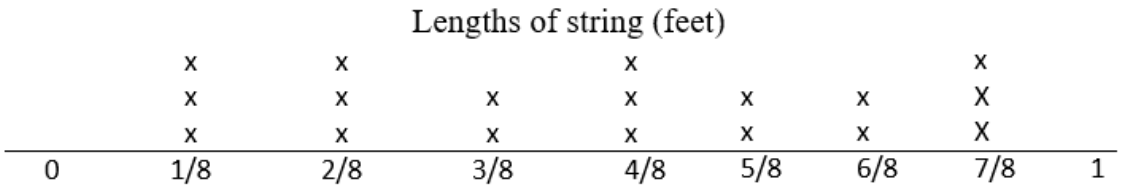
Problem # 9

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 9 *(3 points, 3 minutes)*

The measurement of 18 different strings are on the line plot below. Answer the questions based on the information. Your answers need to be reduced proper fractions or mixed fractions.



1. How many strings are more than ½ of a foot long?

ANSWER: _____

2. How many strings are shorter than 3/8 of a foot?

ANSWER: _____

3. If you put all of the strings together that are 1/8 ft. and 2/8 ft., how long would the new string be?

ANSWER: _____

4. If you put all of the strings together, how long would that string be?

ANSWER: _____

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Problem # 10

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 10 *(2 points, 2 minutes)*

Item Pricing

The last task you need to complete before the store opens is the item pricing. The table below shows the cost to buy each different item from a manufacturer. The table also shows the amount of money the store will earn when the store sells the item. The equation below shows how to find the price that the store must charge customers in order to earn the correct amount of money.

Cost from Manufacturer + Amount Earned = Price to Charge Customers

Use the equation to complete the table.

Item	Cost from Manufacturer	Amount Earned	Price to Charge Customers ($)
Milk	$2	$1	
Eggs	$3	$1	
Trash bags	$5	$1	
Cereal	$3	$2	
Peanut butter	$2	$2	
Lunch meat	$2	$2	

If a customer buys one of each of these items, what is the total price, in dollars, he or she will be charged? What is the total amount the store will earn? Show how you found your answer.

ANSWERS: Total price charged customers =_____

Total amount store will earn =_____

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Problem # 11

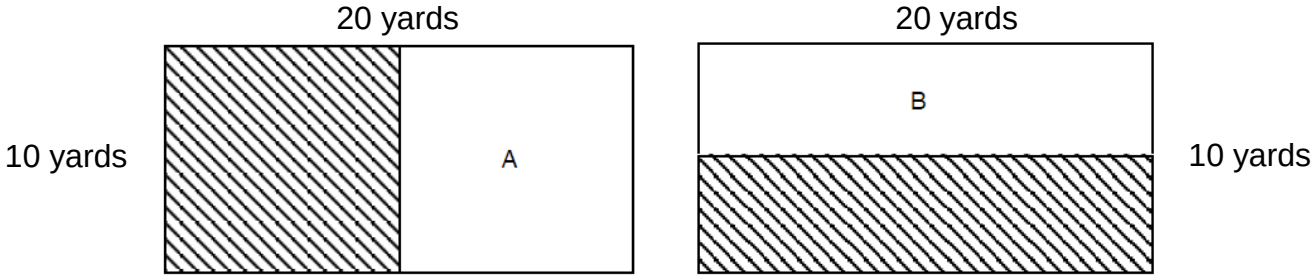
Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 11 *(2 points, 2 minutes)*

The following two diagrams both have the same outside dimensions: 20 yards by 10 yards and are each cut in half to produce a shaded region of land.

Find the **difference in the shaded areas** AND **the difference in shaded perimeters.**



A: Area of shaded region	B: Area of shaded region	Difference between the areas of the shaded regions **ANSWER:** _____
A: Perimeter of shaded region	B: Perimeter of shaded region	Difference between the perimeter of the shaded regions **ANSWER:** _____

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Problem # 12

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

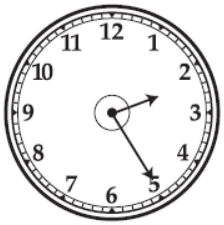
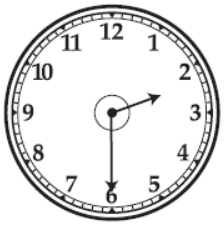
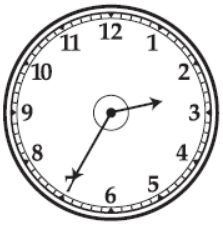
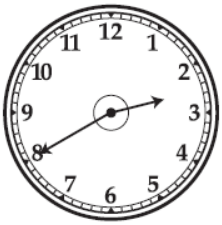
Problem 12 *(1 point, 1 minute)*

Lupe got home from school at 3:00. It took her 35 minutes to walk home.

What time did she leave school?

ANSWER: _____

Put a check below the clock that shows the time Lupe left school.

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Problem # 13

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Team Number: _____ School: _____

Problem 13 ***(2 points, 2 minutes)***

You are in charge of being sure you have enough boxes at the bakery in your local grocery store.

You package the following items in each box.

One dozen cookies
Four muffins
Three cinnamon rolls

How many total boxes did you use when you sold:

72 cookies, 20 muffins, and 42 cinnamon rolls

ANSWER: _____ boxes

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Problem # 14

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 14 *(3 points, 3 minutes)*

There are **297 fourth grade students** who want to play basketball on a team. The parks and recreation department organizes the teams to have 8 members on each team to maximize playing time for each student. The remainder will be placed on teams of 9. **How many teams of 8 and how many teams of 9 will there be when all 297 students are placed on a team?**

ANSWER: 8 member teams: _____

9 member teams: _____

Each game has 4 quarters and each quarter has 7 minutes. There are 5 members on the court at one time, so the total number of minutes played in a game is _____.

ANSWER: _____ minutes

If all members of your 8-member team play the same amount of minutes, how long will everyone be in the game?

ANSWER: Minutes each student should play:_____

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Problem # 15

Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 15 **(3 points, 3 minutes)**

You have a city park by your school that has a rectangular space with a perimeter of 72 feet and an area of 320 sq. feet. The city wants to add 5 ft. to each side of the rectangle. Find the original dimensions and the NEW area. Use the table to help you.

Length L	Width W	Perimeter P	Area A
Original Length	**Original Width**		
_____ ft.	**_____ ft.**	**72 ft.**	**320 sq. ft.**
L + 5	**L + 5**	**AREA of NEW Rectangle**	
		_____ sq. ft.	

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Problem # 16

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Team Number: _____ School: _____

Problem 16 *(1 point, 1 minute)*

There are 365 days in one year.

How many minutes are there in a year?

ANSWER: _____minutes

How many minutes are there in a decade?

ANSWER: _____ minutes

How many minutes are there in a century?

ANSWER: _____minutes`

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