Kansas City Area Teachers of Mathematics
2018 KCATM Contest

Mathletics

Grade 6

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: _____

_____

_____

Thank you to www.aplusclick.org for the wonderful resource of problems for this Mathletics exam 2018.

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

Do <u>NOT</u> round any answers.

1. Find a yearly wage when 40% of that amount is $55,000.

Answer: _____

2. Forty-four percent of your result from #1 is the cost of one model of a luxury vehicle. How much would that vehicle cost?

Answer: _____

3. By the time you get a loan for the luxury vehicle for 6 years, it ends up costing 125% of its original cost (result from #2). What is the final cost of the vehicle?

Answer: _____

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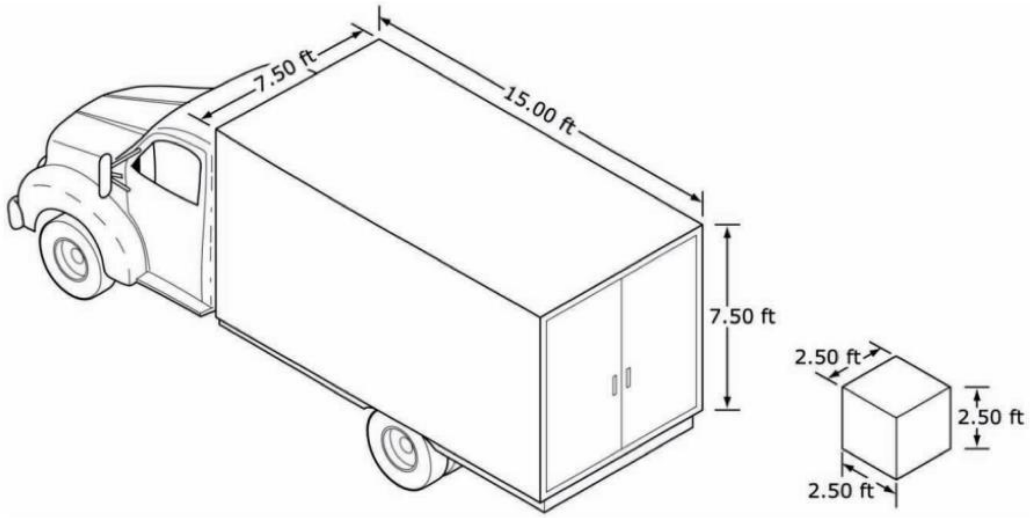
Problem # 4

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

Team Number: _____ School: _____

Problem 4 *(2 points, 2 minutes)*



How many boxes at the right will fit into the back of the truck pictured above?

ANSWER: _____

If each box has merchandise in it that costs $325, what is the total value that the truck is carrying in merchandise?

ANSWER: _____

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Problem # 5

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

Team Number: _____ School: _____

Problem 5 *(3 points, 3 minutes)*

Elephants eat roughly 10% of their body weight in food every day. If an family ate 720 kg of food a day, estimate the **total weight of the family to the nearest tenth of a ton.**

One kilogram is approximately 2.2 pounds.

ANSWER: _____

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Problem # 6

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

Team Number: _____ School: _____

Problem 6 *(2 minutes, 2 points)*

There are 12 men/women on a basketball team, but only 5 play at one time. There are 4 quarters in the game and each quarter is 12 minutes.

If the coach's philosophy is that all team members will play the same amount of time, **how many minutes should each player play**?

ANSWER: _____ minutes

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Problem # 7

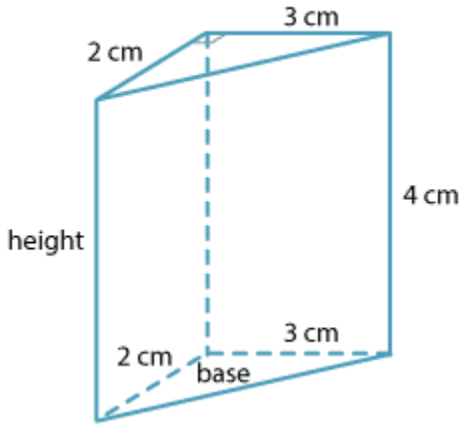
Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 7 *(2 minutes, 2 points)*

Find the **volume** of the right triangular prism when the formula is:

(Area of the triangular base) x (Height of the prism)



Label your answer. *(The **label must be correct** for the points to be awarded.)*

ANSWER: _____ _____

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Problem # 8

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

Team Number: _____ School: _____

Problem 8 *(1 point, 1 minute)*

If there are 48 students in 6th grade at your school, and there are five boys to every 3 girls. How many boys are there in 6th grade?

ANSWER: _____

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Problem # 9

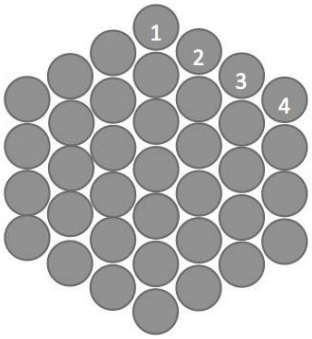
Do NOT turn the page until you are told to do so.

Team Number: _____ School: _____

Problem 9 *(3 points, 3 minutes)*

A “Size 4” cable is made up of 37 strands**. How many strands are needed to make a “Size 5” cable?**

Size 4:



ANSWER: _____

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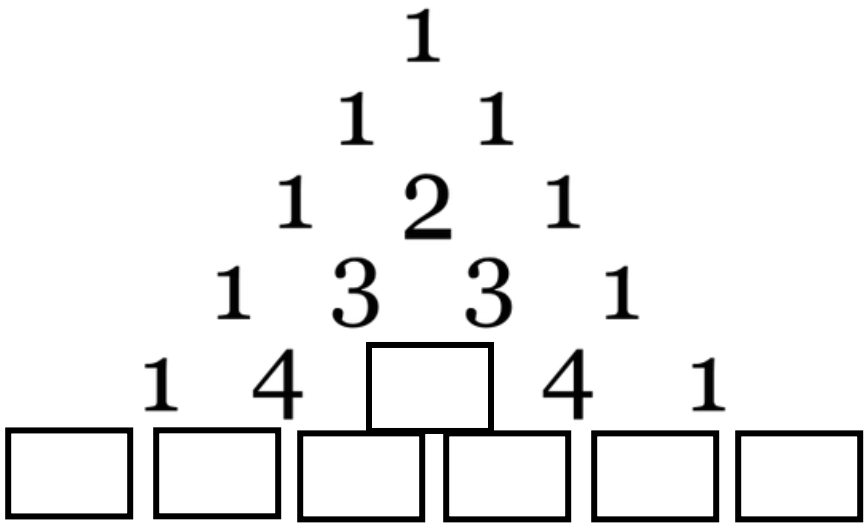
Problem # 10

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

Team Number: _____ School: _____

Problem 10 *(2 points, 2 minutes)*

Below is the start of **Pascal's Triangle**. Find the missing number in row 4 and fill in the six numbers in row 5. You must have all correct for 2 points.



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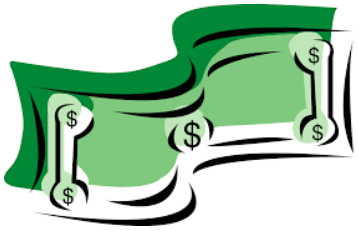
Problem # 11

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

Team Number: _____ School: _____

Problem 11 *(2 points, 2 minutes)*

A school district's budget was cut from $2.2 million to $2,000 thousand. What is the percent of decrease to the budget to the nearest tenth of a percent.



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)*

Two students start at the same point, walk in opposite directions for X meters, turn right and walk another Y meters, and then turn right and walk another X meters. What **expression represents the distance between them after these moves**?

ANSWER: _____

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Problem # 13

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

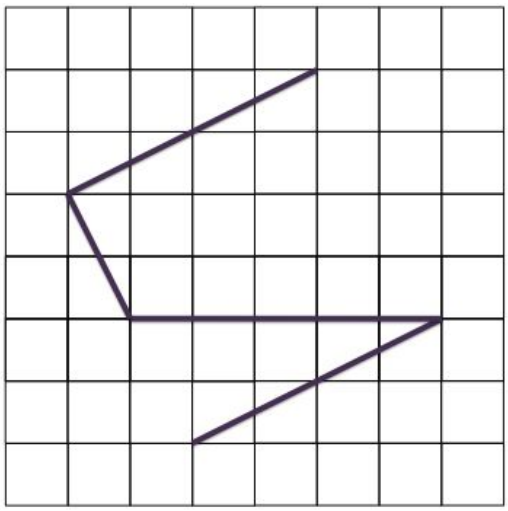
Team Number: _____ School: _____

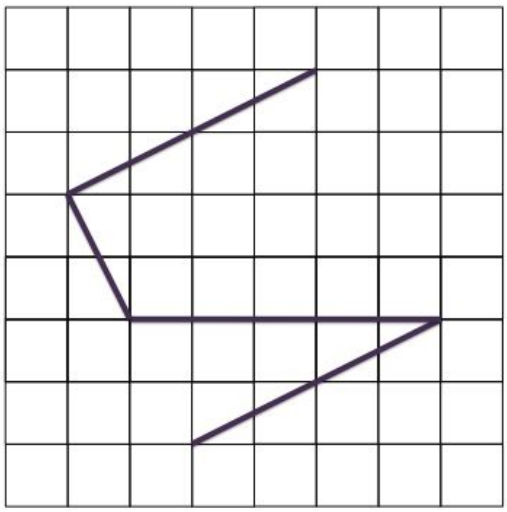
Problem 13 ***(2 points, 2 minutes)***

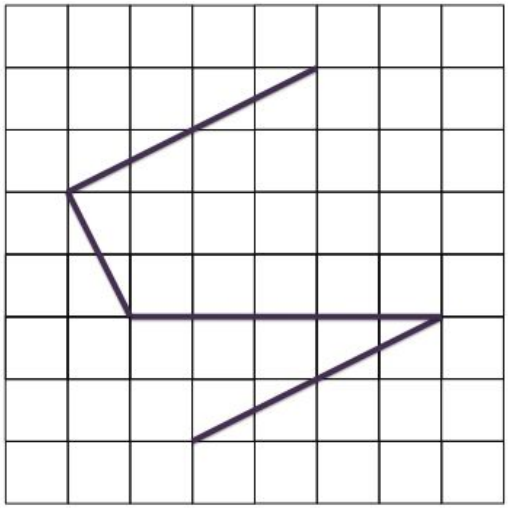
How many more lines must be drawn to make a shape that has a line of symmetry?

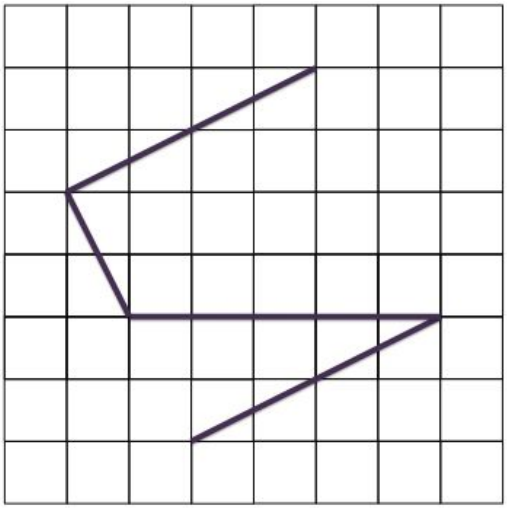
Find the minimum number. Draw the shape.

Trials → Please **<u>circle</u>** *the trial that satisfies the question!*









ANSWER: _____

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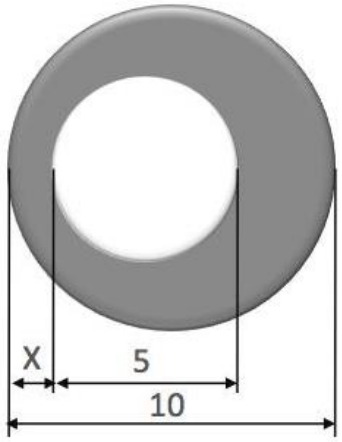
Problem # 14

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

Team Number: _____ School: _____

Problem 14 *(2 points, 2 minutes)*

For what value of x would the centers of the two circles coincide?



ANSWER: _____

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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)**

Carla is 5 years old and James is 13 years younger than Pete. One year ago, Pete's age was twice the sum of Carla's and James' age.

Find the present age of each of them.

ANSWERS:

Carla's age: _____

James' age: _____

Pete's age: _____

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Problem # 16

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

Team Number: _____ School: _____

Problem 16 *(1 point, 1 minute)*

Abraham has an average of 75% on 4 different tests. If the lowest score is dropped, Abraham's average rises to 90%.

What is Abraham's lowest score?

ANSWER: _____%

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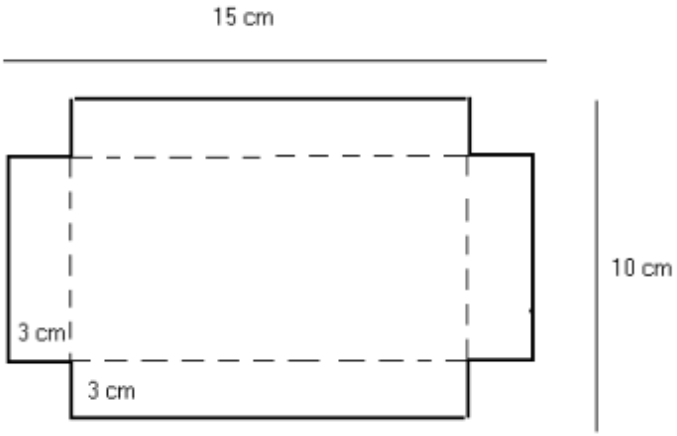
Problem # 16

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

Team Number: _____ School: _____

Problem 17 *(3 points, 3 minutes)*

. Mary wants to make a box. She starts with a piece of cardboard whose length is 15 centimeters and width is 10 centimeters. Then she cuts 4 congruent squares with sides of 3 centimeters at the four corners and folded at the broken lines to make the box. What is the volume of the box?



ANSWER: _____

TEAM #: _____School Name_____