Kansas City Area Teachers of Mathematics
2017 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 <u>calculator</u> on this test, but NO cell phones calculators can be used!**
- <u>Blank scratch paper can be used</u>. 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.

Problem # 1

2 minutes, 2 points

Team Number: _____   School: _____

Students: _____

_____

_____

Problem 1 (2 minutes, 2 points)

Eric wants to add 3 new laughs to his repertoire.
- the "snicker"
- the "snort"
- the "cackle"

The laugh meter rates a cackle as 5 times as funny as a snort. It rates a snort as 3 times as funny as a snicker. And it rates a snicker as 5 points less funny than a chuckle.

If a chuckle registers 10 points on the laugh meter, how funny is a cackle?

Answer: _____ points

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Problem # 2

3 minutes, 3 points

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

Team Number: _____   School: _____

Problem 2 *(3 points, 3 minutes)*

Ten objects are numbered 1 through 10 and distributed into bags. If it is know that 1, 4, and 7 are in the same bag, the pair 2 and 10 are in the same bag, and similarly, for the pairs 3 and 6, 1 and 5, 3 and 8, and 2 and 6.

What is the largest number of bags that can contain at least one object?

A. 2   B. 3   C. 4   D. 5   E. 6

Answer: _____

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Problem # 3

1 minute, 1 point

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

Team Number: _____   School: _____

Problem 3 *(1 point, 1 minute)*

It took 3 hours and 45 minutes to drive to Grandma Smith's house traveling 60 miles per hour. That was three times longer than took to get to Grandma Phipps's house.

How long did it take to get to Grandma Phipps's house and **what is the distance to Grandma Phipps's** house traveling at the same rate as going to visit Grandma Smith.

Answers: _____hr. _____min.

_____ miles

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Problem # 4

2 minutes, 2 points

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

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Problem 4 *(2 points, 2 minutes)*

The manager of a bookstore ordered 480 copies of a book.

A worker unpacked books at a rate of 48 books every 2 minutes. The manager unpacked books at a rate of 54 books every 3 minutes.

How long did it take to unpack all of the books if the worker and the manager started unpacking at the same time? Round to the nearest tenth.

Answer: _____ minutes

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Problem # 5

2 minutes, 2 points

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

Team Number: _____   School: _____

Problem 5 *(2 points, 2 minutes)*

The frequency table shows the number of hours each student in class spent volunteering in on week.

Volunteering

Number of Hours	Students
1				
2	卌
3			
4	卌	
5			
6			

Find the **mean** number of hours volunteered per student.

Answer: _____ hours

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Problem # 6

1 minute, 1 point

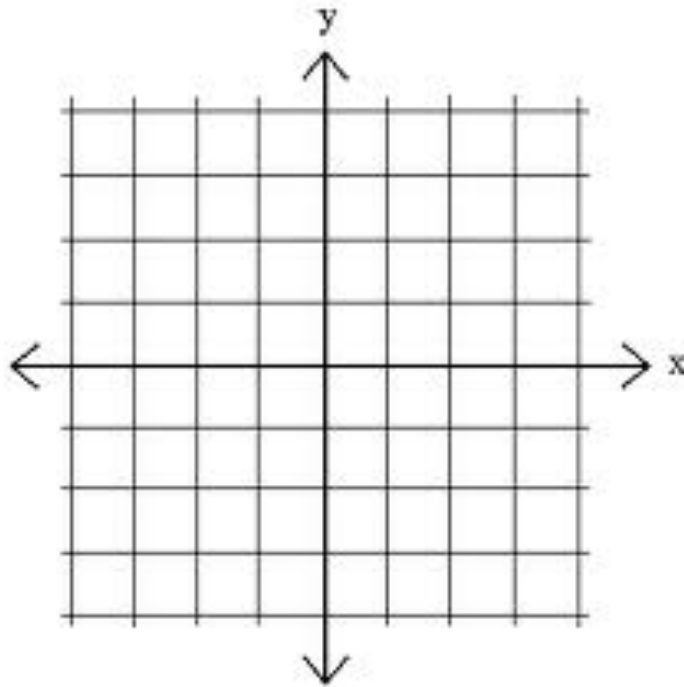**Do NOT turn the page until you are told to do so.**

Team Number: _____   School: _____

Problem 6 *(1 minute, 1 point)*

Rectangle ABCD has a coordinates:
A(0,0), B(2,0), C(2,1), and D(0,1).

The rectangle is rotated 90° clockwise around the origin.

What are the coordinates of point B′ in the new figure?

Answers: (_____ , _____)

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Problem # 7

3 minutes, 3 points

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

Team Number: _____   School: _____

Problem 7 *(3 minutes, 3 points)*

Jillian wanted to get some exercise to help her in her conditioning for track. Her routine was to climb the football stadium staircase going up 3 stairs, then back down 2, over and over again until she reached the top. It the top was 39 stairs, what was the total number of stairs she went up and down?

Answer: _____ stairs

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Problem # 8

3 minutes, 3 points

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

Team Number: _____   School: _____

Problem 8 *(3 points, 3 minutes)*

Trucks are delivering gravel to a construction site.
- Each truck holds 7.5 cubic yards of gravel.
- The weight of 1 cubic yard of gravel is 1.48 tons.
- The gravel will be placed in containers that each hold 3.7 tons of gravel.

How many containers of this size are needed to hold all the gravel from 2 trucks?

Answer: _____

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Problem # 9

1 minute, 1 point

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

Team Number: _____   School: _____

Problem 9 *(1 point, 1 minute)*

There were 5 horses in a race.
- Horse A did not win.
- Horse B came in 20 meters behind A.
- Horse D came in 10 meters ahead of horse C.
- Horse E came in 15 meters ahead of horse B.

Which horse won the race?

Answer: _____

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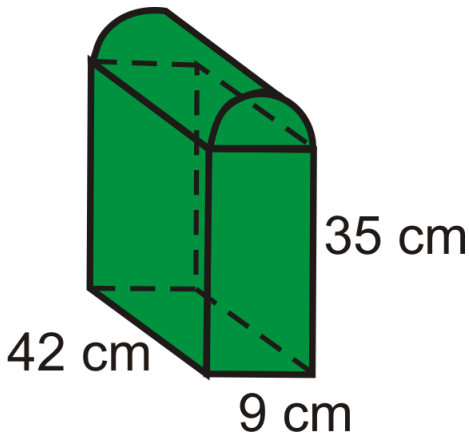
Problem # 10

2 minutes, 2 points

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

Team Number: _____   School: _____

Problem 10 *(2 points, 2 minutes)*

Find the volume of the composite shape that looks like a mailbox. The top is made from ½ of a cylinder. Use the π button on your calculator and round to the nearest hundredth of a centimeter.

Formula for the volume of a cylinder: $V = \pi r^2 h$

35 cm

42 cm

9 cm

Answer: _____ cu. cm

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Problem # 11

2 minutes, 2 points

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

Team Number: _____   School: _____

Problem 11 *(2 points, 2 minutes)*

A school has 10 classes with the same number of students in each class. One day, the weather was bad and many students were absent. 5 classes were half full, 3 classes were 3/4 full and 2 classes were 1/8 empty. A total of 70 students were absent.

How many students are in this school when no students are absent?

Answer: _____ students

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Problem # 12

1 minute, 1 point

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

Team Number: _____   School: _____

Problem 12 *(1 point, 1 minute)*

Javier has an equal number of dimes, nickels, and quarters. He has a total of $2.40.

How many coins does he have altogether?

Answer: _____

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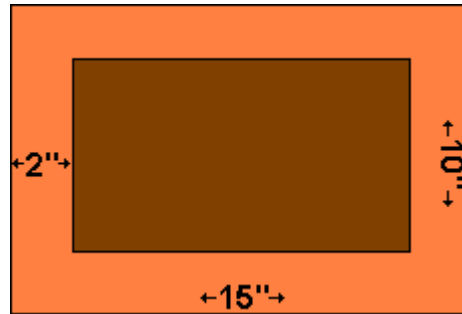# Mathletics
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Problem # 13

3 minutes, 3 points

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

Team Number: _____   School: _____

Problem 13 *(3 points, 3 minutes)*

What is the area of the picture frame
that goes around the center rectangle?

Answer: _____sq. inches

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Problem # 14

1 minute, 1 point

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

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Problem 14 *(1 point, 1 minute)*

How many 3 digit numbers have digits whose sum is 26?

Answer: _____

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Problem # 15

3 minutes, 3 points

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

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Problem 15 (3 points, 3 minutes)

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

Find the present age of each one of them.

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Problem # 16

2 minutes, 2 points

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

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Problem 16 *(2 points, 2 minutes)*

$$\text{If } (x^2 - y^2) = 10 \text{ and } (x + y) = 2,$$

$$\text{find } x - y.$$

Answer:

$x - y =$ _____

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Problem # 17

1 minutes, 1 point

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

Team Number: _____   School: _____

Problem 17 *(1 point, 1 minute)*

Solve the equation for <u>one</u> of the 2 answers that make this equation true:

2|3x - 2| - 3 = 7

Answer: _____ or _____
(need one correct)

TEAM #: _____ **School Name** _____