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Algebra 1 Honors Summer Assignment

Name:_____HR_____

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As an incoming Algebra 1 Honors student, it is important that you are proficient in several skills from previous math courses. The following exercises are intended to provide a review of the 8th grade math skills you are expected to know as you enter Algebra 1 Honors this September.

If you need assistance or further practice with any of these skills, we strongly recommend that you visit one of the free websites below:

http://www.khanacademy.org/

The Khan Academy website offers a list of videos that explain how to solve various types of math problems

 www.intmath.com

This interactive math link offers help with ordering numbers, operations with real numbers, or order of operations.

 www.math.com

This website offers help with evaluating expressions, combining like terms, writing equations, solving equations, or graphs.

This packet is due on Friday, September 9th, 2016. It will count as a homework grade.

<ins>**Test on this pre-requisite material: Week of September 12th, 2016.**</ins>

Enjoy your summer. If you have question you can email me at bimamavi@paps.net

Looking forward to seeing you in September!

Mrs. Mavi

Determine whether each of the following equations has no solution, no solution or infinitely may solutions.

Show each step of your work. Enter your answer in the box. Explain your conclusion.

1. $\frac{3}{4}(x+8)=9$	2. $0.5(5-7x)=8-(4x+6)$
3. $3(x-6)-8x=-2+5(2x+1)$	4. $\frac{1}{5}(2x-10)+4x=-3\left(\frac{1}{5}x+4\right)$

5. Mario is building a rectangular sandbox for his younger brother. The length of the sandbox is 1 foot longer than twice the width of the sandbox. The perimeter of the sandbox is 29 feet.

PART A

Which equation could be used to determine w, the width, in feet, of the sandbox?

A. $w + w + 2 = 29$

B. $w + 2w + 1 = 29$

C. $2w + 2(w + 2) = 29$

D. $2w + 2(2w + 1) - 29$

PART B

What is the width, in feet, of the sandbox? Show all work to justify your answer.

6. A relationship between x and y is defined by the equation $y = -\frac{4}{3}x + \frac{1}{3}$, where x is the input and y is the output. Which statements about the relations are true?

Select **each** correct statement.

A. y is a function of x

B. The graph of the relationship is a line.

c. When the input is -3, the output is 4.

D. When the input is -2, the output is 3.

E. The y-intercept of the relationship is (0 1).

7. Graph: $y = -\frac{2}{3}x + 1$
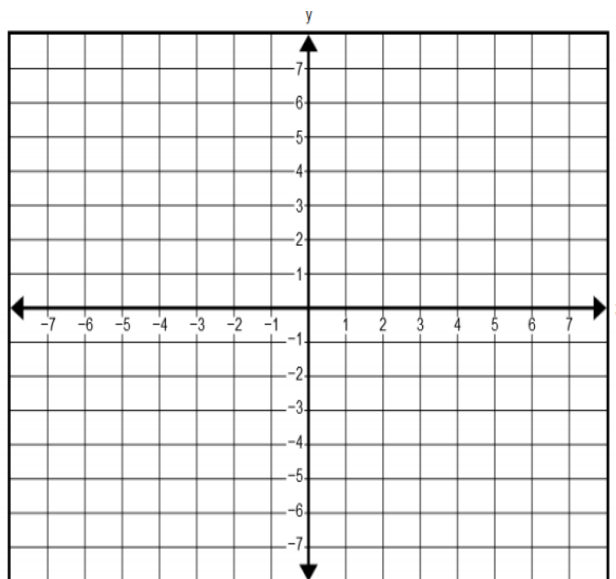
8. The graph and table show the amount of gasoline in gallons, x, and the total cost in dollars, y, of gasoline at two gas stations.

Gas Station P

Gas Station M

| x	y
5	19.00
10	38.00
15	57.00
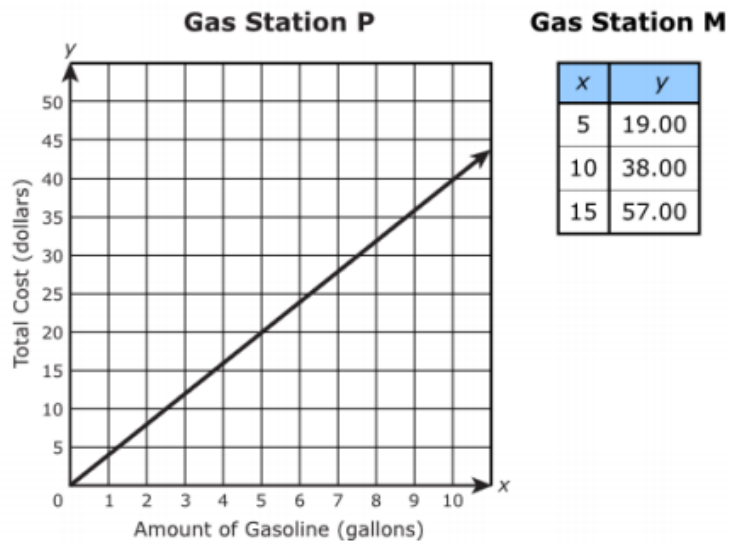
Use the unit price of gasoline at both gas stations to determine which gas station charges more for gasoline. Be sure to include the unit prices in your answer. Show or explain your work.

9. Mindy is saving money. She started with $0. After 6 weeks, she had $90 saved. Mindy is not sure exactly how much money she saved each week. She assumes that she saved money at a constant rate from when she started saving money through week 6.

PART A

Create a graph that can be used to model the number of dollars, y, Mindy saves in x weeks.
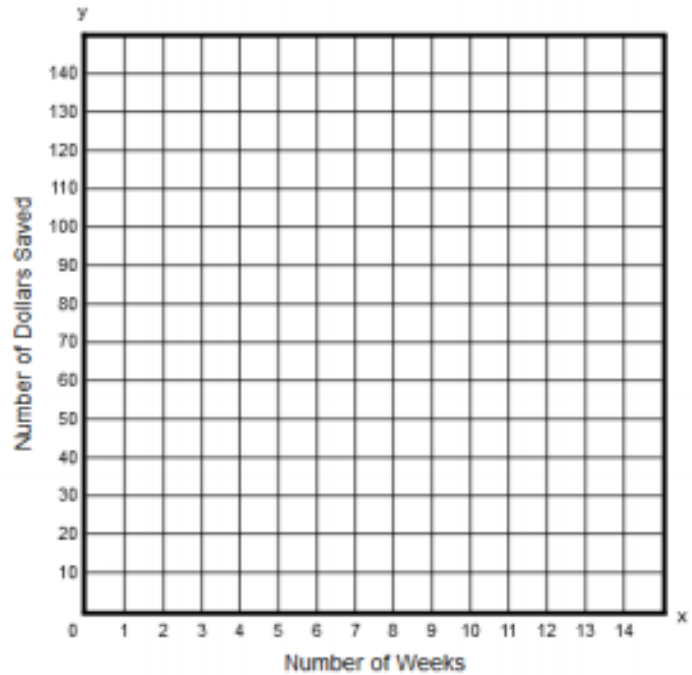

PART B

Explain what the slope of the line you drew represents. Enter your explanation in the space provided.

PART C

Explain how the line you drew can be used to predict the number of weeks it will Mindy to save $150. Include in your explanation any assumptions that must be made in order to make the prediction. Enter your explanation in the space provided.

10. During a ten-minute science experiment, the temperature of a substance decreases at a constant rate. Which graph represents this situation?

A.

B.

C.

D.
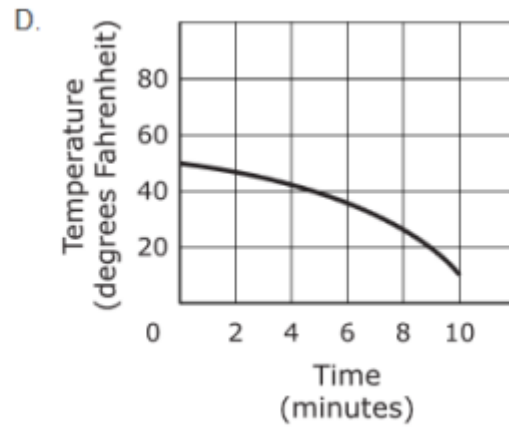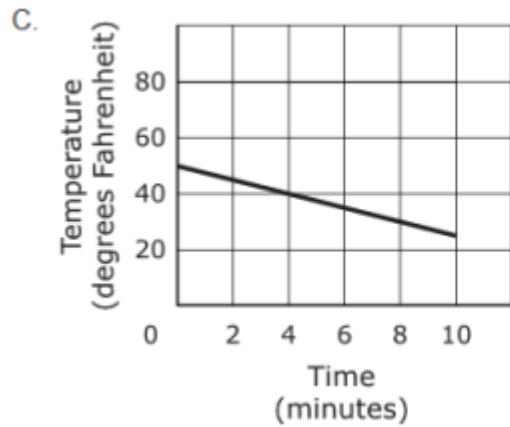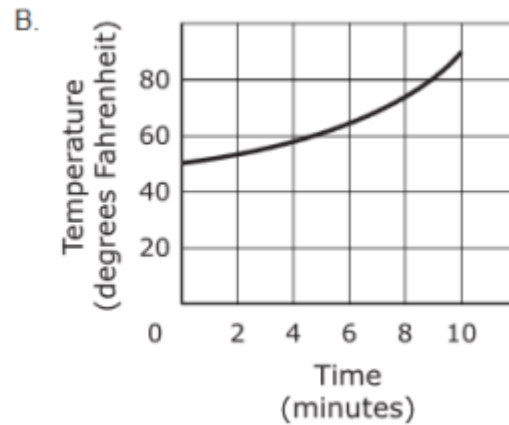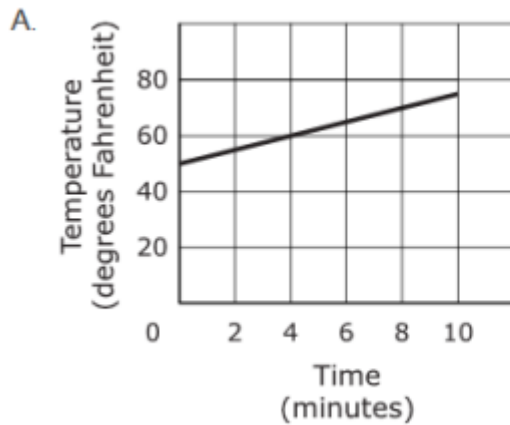
11. A relationship between x and y is defined by the equation -5x + 3y = 12, where x is the input and y is the output. Indicate whether each of the statements about the relationship is true or false by selecting a box in each row.

Statement	True	False
y is a function of x.	☐	☐
The graph of the relationship is a line.	☐	☐
The graph of the relationship passes through the origin.	☐	☐
When the input is 6, the output is 14.	☐	☐

12. Seven expressions are shown. Indicate whether each expression is equivalent or not equivalent to

$$7^8 \times 7^{-4}$$

List the letters of those equivalent or those not equivalent in the correct boxes.

A. $7^{(8-4)}$

B. $\left(7^8\right)^{-4}$

Not Equivalent to $7^8 \times 7^{-4}$

C. $\dfrac{7^8}{7^4}$

D. $\dfrac{7^8}{7^{-4}}$

Equivalent to $7^8 \times 7^{-4}$

E. 7^2

F. 7^{-2}

G. 7^{-32}

13. A system of equations is shown.

$$\begin{cases} x + \dfrac{1}{2}y = 0 \\ x - \dfrac{3}{2}y = 4 \end{cases}$$

In the solution to this system of equations, what is the value of y?
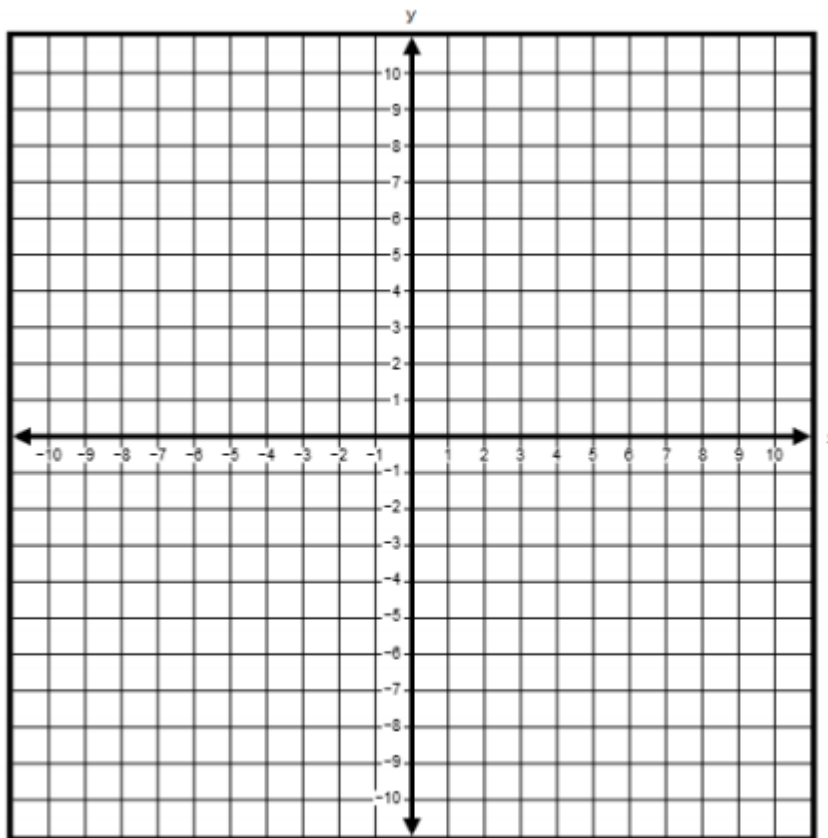Enter your answer in the box.

y = ⬚

14. The equation of line **j** is y = -2x + 8
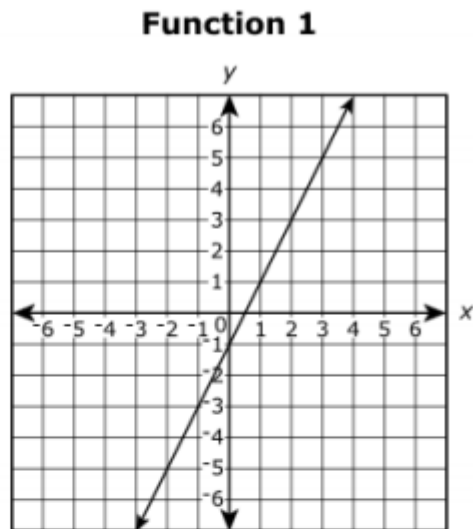
The equation of like **k** is y = 3x - 7

The equations of lines **j** and **k** form a system of equations. The solution to the system of equations is located at point P.

Graph the system of equations on the coordinate plane, labeling lines **j** and **k.**
Plot point P on the graph and write its coordinates in the boxes below.

P ([   ] , [   ])

15. The graph of Function 1 is shown on the coordinate plane.

Function 1

The equations of three other functions are given.

Function 2	Function 3	Function 4
$y = 3 + 2x$	$y = 2$	$y = \frac{3}{2}x + 6$

Which function or functions have a slope equal to the slope of Function 1?

A. Function 2 only

B. Function 4 only

C. Function 2 and Function 3 only

D. Function 2 and Function 4 only

16. A tank of water was drained at a constant rate. The table shows the number of gallons of water left in the tank after being drained for two amounts of time.

| Draining Time (minutes)	Water in Tank (gallons)
10	450
30	350

PART A

What is the rate at which the water was drained from the tank?

PART B

What was the total amount of water in the tank before it was drained?

17. Bill drove his car at a constant speed while on a trip. Kevin drove his car at a different constant speed while on the same trip. The graph and table show information about the trips Bill and Kevin took.

Bill's Trip

Distance from Home (miles) — Time (hours)
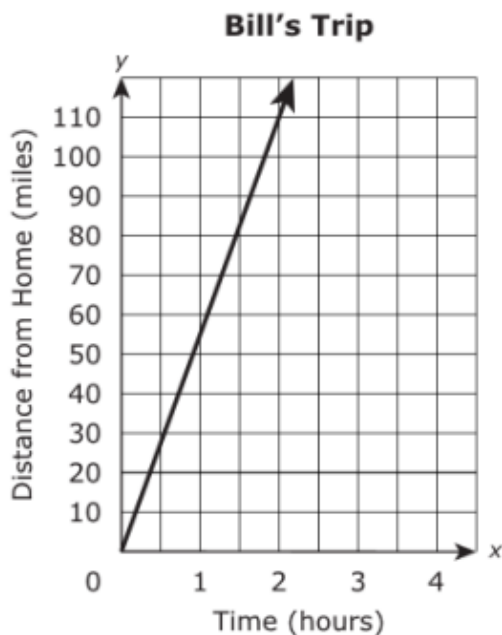
Kevin's Trip

Time (hours)	Distance from Home (miles)
0	0
2	90
3	135
5	225
6	270

Which sentence correctly compares the rates Bill and Kevin drove on their trips?

A. Bill drove at a rate that was 10 miles per hour slower than the rate Kevin drove.

B. Bill drove at a rate that was 10 miles per hour faster than the rate Kevin drove.

C. Bill drove at a rate that was 20 miles per hour slower than the rate Kevin drove.

D. Bill drove at a rate that was 20 miles per hour faster than the rate Kevin drove.

18. Which functions are **not** linear? Select **three** such functions.

A. $y = \dfrac{x}{5}$

B. $y = 5 - x^2$

C. $-3x + 2y = 4$

D. $y = 3x^2 + 1$

E. $y = -5x - 2$

F. $y = x^3$

19. A bakery uses a muffin recipe that uses $\frac{1}{2}$ cup of milk for every batch of 12 muffins.

PART A

Based on the recipe, which statement is true?

Select each correct answer.

A. $\frac{1}{24}$ cup of milk is used to make each muffin

B. $\frac{1}{12}$ cup of milk is used to make each muffin

C. $\frac{1}{6}$ cup of milk is used to make each muffin

D. I cup of milk is used to make every 6 muffins

E. 1 cup of milk is used to make every 12 muffins

F. 1 cup of milk is used to make every 24 muffins

PART B
How many batches of 12 muffins can be made using one gallon of milk? Show your work or explain how you found your answer.

PART C

The bakery makes 96 muffines everyday. How many total gallons of milk are needed to make 96 muffins every day for 30 days. Show our work or explain how you found your answer.

20. Right triangle LMN is shown.
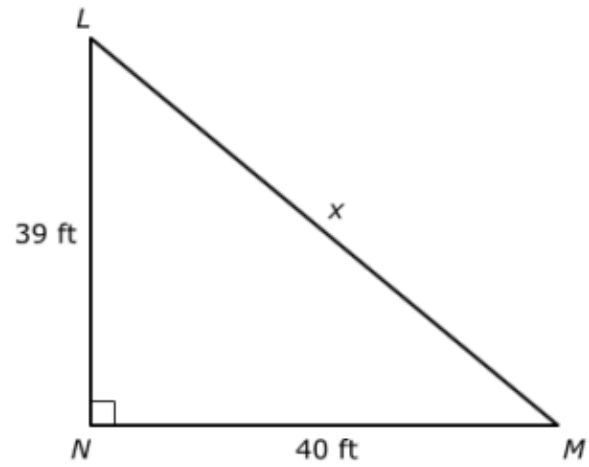
What is the length of the hypotenuse, x, of triangle LMN? Round your answer to three decimal places.

Algebra 1 Summer Assignment Alignment

Question	Type	PARCC Test	Evidence Statement
1	II	PBA- #2	8.EE.C.7b
2	II	Practice Test Part 1 - #2	8.EE.C.7b
3	II	EOY - #17	8.EE.C.7b
4	II	Practice Test Part 2 - #19	8.EE.C.7b
5	I	Practice Test Part 2 - #22	8.EE.C.7
6	I	Practice Test Part 2 - #5	8.FA.1
7	I	EOY - #6	8.F.1-2
8	III	PBA-#14	8.D.1
9	III	PBA - #18	8.D.3
10	I	EOY - #13	8.F.5-2
11	I	EOY - #15	8.F.3-1
12	I	EOY - #1	8.EE.1
13	I	EOY - #3	8.EE.8b-1
14	I	EOY - #16	8.EE.8b-2
15	I	EOY - #21	8.F.2
16	I	EOY - #24	8.F.4
17	I	EOY - #30	8.EE.5-2
18	I	EOY - #14	8.F.3-2
19	III	PBA-#17	8.D.2
20	I	EOY - #26	8.G.7-1