



NORTH HAVEN HIGH SCHOOL
221 ELM STREET
NORTH HAVEN, CT 06473

Applied Algebra I (Level 1) Summer Math Assignment

June 2017

Dear Parents, Guardians, and Students:

The Applied Algebra I curriculum builds on concepts that were introduced in previous courses in middle school and high school. All students entering this course will be expected to complete a math packet this summer. Please be sure that the completed packet is brought to school on the first day of class. The teacher will check the packet and each student will receive a grade based on completion.

The purpose of students completing this packet is two-fold. First, is to keep math skills at the same level or higher than when the school year ended. Second, is to help students and teachers identify the prerequisite concepts and skills that each student has and has not mastered. It is expected that students will attempt all problems in the packet. If your child is having difficulty with any of the problems, please encourage him/her to use the websites in each section of the packet.

It is important that each student attempt each problem and show work. By attempting to solve each problem, and communicating their thinking in writing, students provide a way for teachers to identify and remedy any misconceptions more efficiently. Since the concepts and skills that are taught in all mathematics courses follow a progression, identifying each student's strengths and weaknesses is essential in order to develop new learning in the subsequent course.

A Note About Graphing Calculators

Students will be using graphing calculators in mathematics courses such as Algebra I, Algebra II, Pre-calculus, Calculus, and Statistics. Each teacher has enough graphing calculators for every student to use in class, so students are not required to purchase graphing calculators. However, if a student would like to make the investment to use throughout high school and most likely college, we recommend the TI-84 Plus, which is the calculator used in class. (Please note that the TI-84 Plus CE is not necessary.) There are many sales over the summer so if you wish to purchase one it is a good time to do so. These calculators can be found at Amazon, Walmart, Staples, Target, and other stores that sell school supplies.

The mathematics department thanks you for your support and wishes you and your family a happy and restful summer!

Sincerely,
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Algebra I L3 Teacher

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APPLIED ALGEBRA I – SUMMER PACKET

WORKING WITH INTEGERS - DO THE FOLLOWING PROBLEMS WITHOUT A CALCULATOR! For help go to <http://www.coolmath.com/prealgebra/08-signed-numbers-integers>

6) ADDITION OF INTEGERS

- a) $-5 + -9$ b) $-12 + 5$ c) $7 + -3$ d) $-9 + 9$ e) $-4 + -3 + 5 + -6$

7) SUBTRACTION OF INTEGERS

- a) $10 - 11$ b) $-9 - 8$ c) $-5 - (-4)$ d) $8 - (-2)$ e) $-6 - 3 - (-5)$

8) MULTIPLICATION OF INTEGERS

- a) $-4 (5)$ b) $-3 (-2)$ c) $(-3)^2$ d) $-2 (-4)(-3)$ e) $(-2)^3$

9) DIVISION OF INTEGERS

- a) $-15 \div 3$ b) $-24 \div -8$ c) $18 \div -6$ d) $36 \div 9$

PREALGEBRA CONCEPTS

10) EVALUATE USING ORDER OF OPERATIONS – show work! No calculators for help go to <http://www.coolmath.com/prealgebra/05-order-of-operations>

- a) $9 + 3 \cdot 2$ b) $5 \cdot 3 + 4 \cdot (-3)$

11) Evaluate the following expressions for $x = 3$ and $y = -4$ show work! No calculators

a) $x + y$

b) $5x$

c) $\frac{xy}{2}$

SOLVING EQUATIONS <http://www.coolmath.com/prealgebra/16-intro-to-solving-equations>

12) **SOLVE ONE STEP EQUATIONS** (show work on both sides – be careful with signs) You may use a calculator to do the computation work.

a) $-2x = -36$

b) $x - 7 = -12$

c) $\frac{m}{-4} = -8$

d) $m + 4 = -18$

13) **SOLVE TWO STEP EQUATIONS** Show solving steps (undo addition or subtraction first, don't lose signs!) You may use a calculator to do the computation work.

a) $-3n - 5 = 16$

b) $5x + 2 = -18$

c) $\frac{h}{3} - 7 = -4$

MORE SOLVE TWO STEP EQUATIONS Show solving steps. (undo addition or subtraction first, don't lose signs!) You may use a calculator to do the computation work.

d) $10 + 4x = 34$

e) $7 - 2x = 5$

f) $38 = 5x - 2$

SIMPLIFYING EXPRESSIONS There are a series of videos on Khan Academy that can help you with these concepts <https://www.khanacademy.org/math/algebra-basics/core-algebra-expressions/core-algebra-manipulating-expressions/v/combining-like-terms>

14) **SIMPLIFY BY COMBINING LIKE TERMS** for help go to <http://www.mathsisfun.com/algebra/like-terms.html>

a) $5m + 6m$

b) $3x - 7x$

c) $2a + 8a + a - 5a$

15) **SIMPLIFY BY USING THE DISTRIBUTIVE PROPERTY** You may use a calculator to do the computation work.

a) $3(x + 8)$

b) $4(2x - 3)$

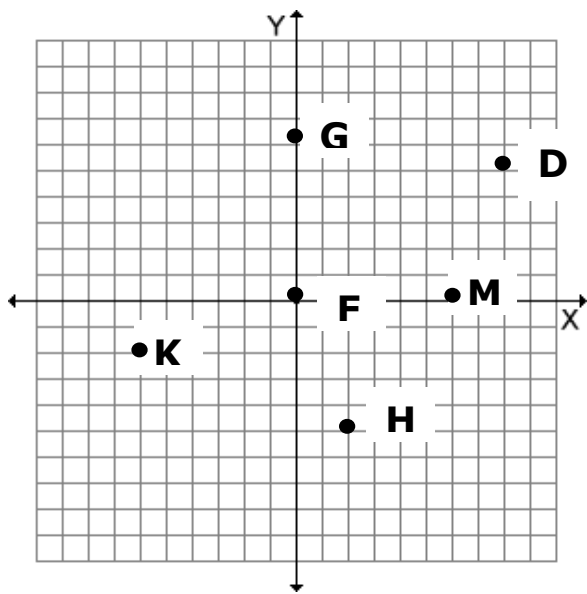
c) $-5(3x + 4)$

d) $-(x + 3)$

e) $6(2 - x)$

f) $-2(x - 7)$

THE COORDINATE PLANE for help go to <http://www.coolmath.com/algebra/08-lines/02-plotting-points-01>



16) Name the given points on this coordinate plane with ordered pairs (x, y)

a) **D** _____

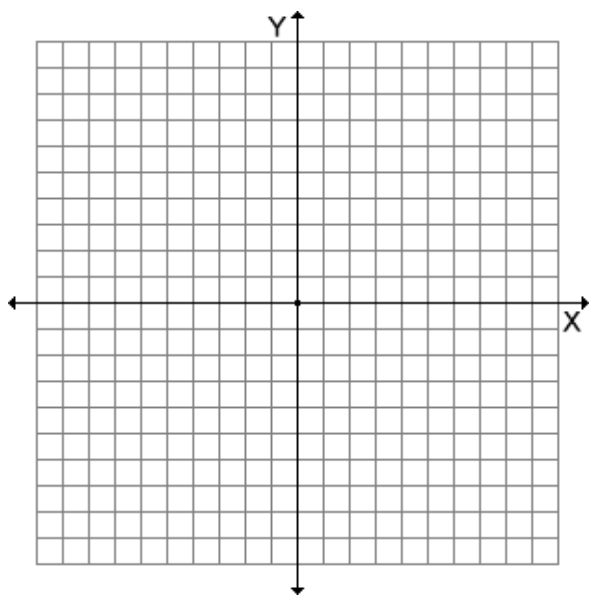
b) **F** _____

c) **G** _____

d) **H** _____

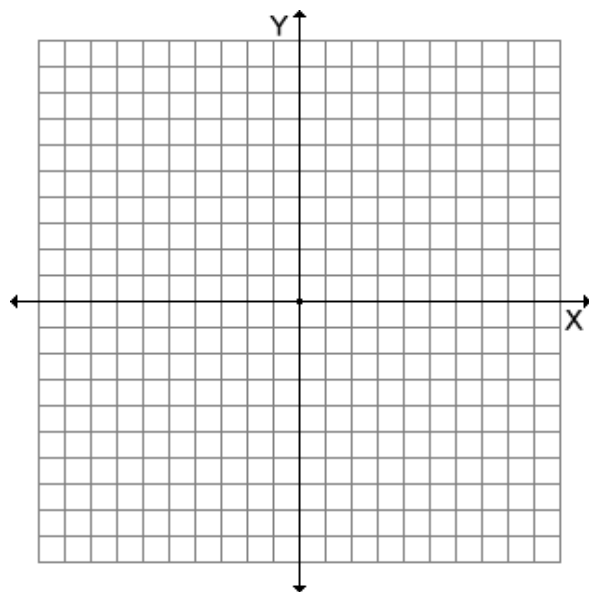
e) **K** _____

f) **M** _____



17) Plot the following points on the given coordinate plane (label with the letter given)

A (0, -5) B (-7, -2) C (3, 0) D (8, -1) E (-2, 5)



18) Graph the following points in the chart as ordered pairs. Connect the points to make a line.

X	Y
-3	6
0	0
1	-2
4	-8

PROBLEM SOLVING – there are many ways to solve these. Show your work or explain your reasoning so we can see what you were thinking while you solved them.

- 1) Al, Joe, Carl and Dave were standing in line. Dave was not first. Joe was between Al and Carl. Al was between Dave and Joe. In what order were they standing?

- 2) Jill got into an elevator. She went down five floors, up six floors, and down seven floors. She was then on the second floor. Where did he get on?

- 3) How many rectangles can you count in the figure below? Consider all sizes of rectangles, they can overlap!

