NORTH HAVEN HIGH SCHOOL
221 Elm Street
North Haven, CT 06473

Algebra 2 (L2)
Summer Assignment

June 2017

Dear Parents, Guardians, and Students:

Algebra 2 is an extremely important, and at times, challenging course, that includes many topics that students will see on the SAT. A solid algebra foundation is needed to be successful. Since it has been two years since students took Algebra 1, we feel it is vital to review these key topics before beginning Algebra 2.

Please be sure that the completed packet is brought to school on the first day of class. Teachers will check this assignment and review the answers with students. It is expected that students complete all problems in the packet. Completion of this packet will be counted as a grade and there will be a quiz on the material. If students find that they are struggling with any of these concepts a good resource to start with is www.khanacademy.org.

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 2 Teachers

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Algebra Two L2 Summer Review **Name**_____

Remember the course just before Geometry? Yeah, that's right, Algebra One! In Algebra Two we learn concepts that expand upon those you learned in Algebra One. This means you have to be skilled in Algebra 1 topics to be successful in Algebra 2. This Summer Review packet will remind you of basic and essential topics. You are expected to be able to do these problems with ease, so get some help this summer if you don't remember!

ORDER OF OPERATIONS

1) EVALUATE USING ORDER OF OPERATIONS – show work! No calculators

a) -3^2 b) $(-3)^2$ c) $4 - 3\,(\,8 + 12 \div 4)$

d) $6\,(\,3 + 4^2) - 12 \div 2$ e) $-3 - 6 \div 2 - 12$

SIMPLIFYING EXPRESSIONS

2) SIMPLIFY THE FOLLOWING EXPRESSIONS BY COMBINING LIKE TERMS

a) $8m + m + m$ b) $5x - 2x$ c) $8m - m - 9 + 3m + 5$

d) $3x^2 - 5x + 8x - 3 + x^2 - 6x^2 + 12$ e) $4x^2y + xy - 3xy^2$

3) SIMPLIFY THE FOLLOWING EXPRESSIONS BY USING THE DISTRIBUTIVE PROPERTY

a) $4(\,3x + 7)$ b) $7(\,1 - 6w\,)$ c) $-6(\,4a + 3)$ d) $-(6m - 5)$

4) SIMPLIFY THESE USING DISTRIBUTIVE PROPERTY & COMBINING LIKE TERMS

a) $3(m + 2) - 4m$ b) $9x - 4(2x - 1)$ c) $5(x + 1) + 2(4 - x)$

SOLVING BASIC EQUATIONS

5) SOLVE ONE STEP EQUATIONS (show work on both sides)

a) -2x = -36 b) x – 7 = -12 c) $\frac{m}{-4} = -8$ d) $\frac{-2}{5}x = -12$

6) SOLVE TWO STEP EQUATIONS (show work on both sides)

a) -3n – 5 = 16 b) 5x + 2 = -18 c) $\frac{h}{3} - 7 = -4$

d) $\frac{-2}{3}h + 18 = 98$ e) $\frac{2}{5}y + 1 = -11$ f) $\frac{2}{3}x - \frac{1}{2} = \frac{5}{6}$

7) SOLVING MULTI STEP EQUATIONS

a) 4n + 8n = 48 b) 3x + 4 + 8x = 15

c) 2(r – 8) = -12 d) -6(12 – b) = 36

e) 2x – 9 = -x f) -6 + 5x = 8x – 9

SOLVING INEQUALITIES

8) SOLVE EACH INEQUALITY (like equation solving but with a twist)
Graph your solution on a number line.

a) x - 5 > -8 b) 9 – 3x ≥ 24

PROPERTIES OF EXPONENTS

9) SIMPLIFY EACH EXPRESSION:

a) $x^5 \bullet x^2$

b) $(3ab)^2$

c) $(m^2n^3)^4$

d) $(5x^2)^3 \bullet (x^3)^2$

e) b^0

f) $\frac{a^{10}}{a^4}$

g) $\left(\frac{m^3}{n^5}\right)^2$

h) $\frac{x^3 \bullet x^5}{x^2}$

i) 5^{-2}

SIMPLIFYING RADICALS

10) Simplify each radical (NO DECIMAL ANSWER)

a) $\sqrt{20}$

b) $\sqrt{72}$

c) $5\sqrt{12}$

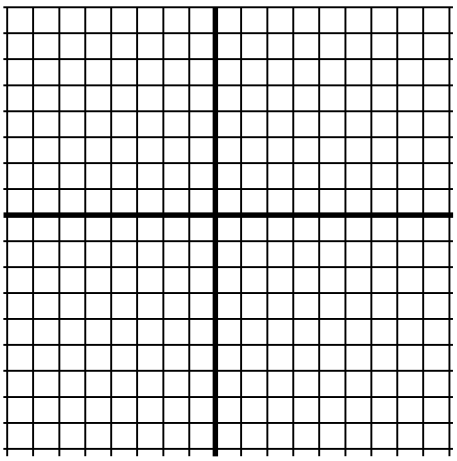
LINEAR EQUATIONS & GRAPHING

11) GIVEN THE LINEAR EQUATION y = 3x + 4

a) What is the slope?_____

b) What is the y-intercept?_____

c) graph it:



12) GRAPH THIS LINEAR EQUATION:

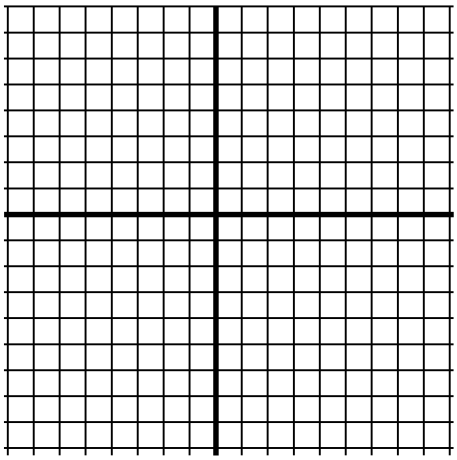
$x + 2y = 8$

a) What is the x-intercept? _____

b) What is the y-intercept? _____

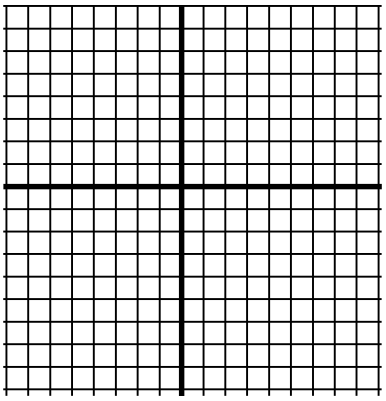
c) What is the slope of this line? _____

d) Graph the line.

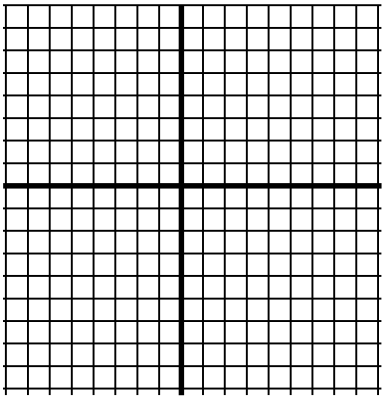


13) GRAPH THESE TWO EQUATIONS

a) $y = 5$



b) $x = -3$



OPERATIONS WITH POLYNOMIALS

14) SIMPLIFY EACH EXPRESSION USING THE INDICATED OPERATIONS

a) Add $(2x^2 + 5x - 9) + (3x^2 - 11x + 2)$

b) Subtract $(3x^3 + x^2 + 1) - (x^3 - 5x^2 + 7x + 3)$

15) MULTIPLY

a) $-3(x^2 - 5x + 4)$

b) $2x(6x^2 - 8x + 7)$

c) $(x - 6)(x + 6)$

d) $(x - 3)(x - 5)$

e) $(2x + 1)(x - 4)$

f) $(x + 7)^2$

16) FACTOR - that is "work backwards" to find the factors of the polynomials

a) $x^2 + 8x + 15$ b) $x^2 - 7x + 10$ c) $x^2 + 6x + 9$

d) $x^2 + 5x - 14$ e) $x^2 - x - 6$ f) $x^2 - 25$

SYSTEMS OF EQUATIONS

17) Solve each system.

a) $\begin{matrix} x = y - 1 \\ 3x + y = 13 \end{matrix}$

b) $\begin{matrix} y + 2x = 15 \\ 2y - 6x = 10 \end{matrix}$

c) $\begin{matrix} 3x + 7y = 6 \\ 2x + 9y = 4 \end{matrix}$

d) $\begin{matrix} 7x + 3y = 2 \\ 14x + 6y = 4 \end{matrix}$

e) At the beginning of the year Ms. McClatchey asks her students to bring in 3 tissue boxes and 2 bottles of liquid soap. Susie's parents spent $15.05 on her items. Johnny accidently switched the numbers and his parents purchased 2 tissue boxes and 3 bottles of soap and spent $16.35. How much does a box of tissues cost?