Name _____

Summer Math Assignment

Entrance into Geometry, Algebra 2 and Advanced Algebra
The following topics are essential to know as you enter into Geometry, Algebra 2 and Advanced Algebra. All these concepts should have been mastered by the end of Algebra 1.

On the second day of school (August 28, 2018), you will be given a quiz on the topics below. You will have the entire class period to complete the quiz <u>with NO calculator.</u> This will be your FIRST QUIZ grade of the school year.

Review these topics over the summer. It is your responsibility to research or seek help for any concepts/topics that have been forgotten.

Fraction Computation
All answers should be in lowest terms. Convert any improper fraction to a mixed number.
SHOW YOUR WORK – DO NOT USE A CALCULATOR

1) $\dfrac{5}{12} + \dfrac{9}{16}$	2) $\dfrac{13}{15} - \dfrac{7}{20}$
3) $1\dfrac{4}{5} + 2\dfrac{7}{9}$	4) $\dfrac{4}{5} \cdot -20$
5) $3\dfrac{1}{2} \cdot 1\dfrac{6}{7}$	6) $1\dfrac{2}{5} \div 2\dfrac{5}{7}$

Order of Operations

Use order of operations to simplify each expression. Leave answers in fraction form if it does not simplify to a whole number.

SHOW YOUR STEPS – DO NOT USE A CALCULATOR

http://www.purplemath.com/modules/orderops.htm

1) $2 \cdot 5^2 - (12 \cdot 6)$	2) $3 - 32 \div 2 \cdot 8$
3) $\dfrac{5 + 7 \cdot 3}{31 - 2 \cdot 3^2}$	4) $8 + 5 \cdot 4^3 - 10 - 3(8 - 6)$

Solve Linear Equations

Solve the following linear equations. Leave your answers on fraction form if it does not simplify to a whole number.

SHOW YOUR STEPS – DO NOT USE A CALCULATOR

https://www.youtube.com/watch?v=c4X5Ap7qJ0s

http://www.purplemath.com/modules/simparen3.htm

1) $8(2 - 3y) = -56$	2) $-4x - 3(2 - 2x) = 7 + 2x$
3) $8^2 = 167 - 2n - 5^2$	4) $5 + 3(x - 4) = 7x - (4x - 1)$

Solve Linear Inequalities

Solve the following inequalities and graph the solution on a number line. When you draw your number lines, not every number needs to be included and the number line should be symmetric.

SHOW YOUR STEPS – DO NOT USE A CALCULATOR
https://www.youtube.com/watch?v=s8Kgy-yqYr8
https://www.youtube.com/watch?v=TZq3OwGWqV4
https://www.youtube.com/watch?v=t3-2PVR5los

1) $6 - \dfrac{2}{3}x < 8$	2) $-90 \geq 5(2x + 6)$
3) $2(g + 4) < 3g - 2(g - 5)$	4) $4(2x + 3) - (2x + 9) \geq 2(x - 4)$

The Slope of a Line

Find the slope of a line that passes through the given points. Leave the answer in improper fraction form. Reduce the fraction.
https://www.youtube.com/watch?v=4fUZjm5Nlo0

1) $(-3, -4)$ and $(5, -1)$	2) $(7, 2)$ and $(7, -1)$
3) $(0, -8)$ and $(3, -8)$	4) $(3, -5)$ and $(-7, 9)$

Proportions
Find the value for the variable in the following proportions
SHOW YOUR STEPS – DO NOT USE A CALCULATOR
https://www.youtube.com/watch?v=EGzL_u_Lhtl

1) $\dfrac{3}{m+4} = \dfrac{9}{14}$	2) $\dfrac{3a+1}{a} = \dfrac{3}{2}$
3) $\dfrac{6r-7}{10} = \dfrac{r}{4}$	4) $\dfrac{5v-4}{10} = \dfrac{4}{5}$

Percent Equations/Percent of Change
Questions 1 & 2 Use the percent proportion to find each number
Questions 3 & 4 Calculate the percent of change
https://www.youtube.com/watch?v=HxEQxS0QSwg
https://www.youtube.com/watch?v=Rdj7-R37AlE

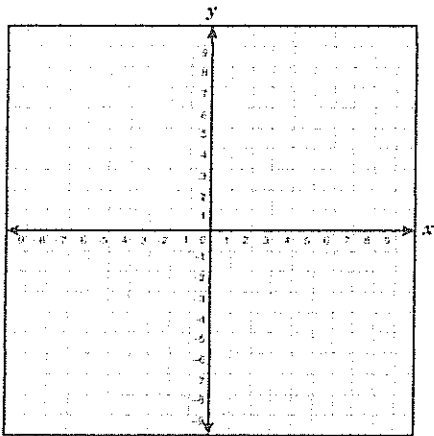|	
1) 14 is 20% of what number?	2) what is 25% of 18?
3) Original: 41 New: 24	4) Original: 6 New: 8

Graph Linear Equations

Graph the following linear equations on the coordinate grid provided.
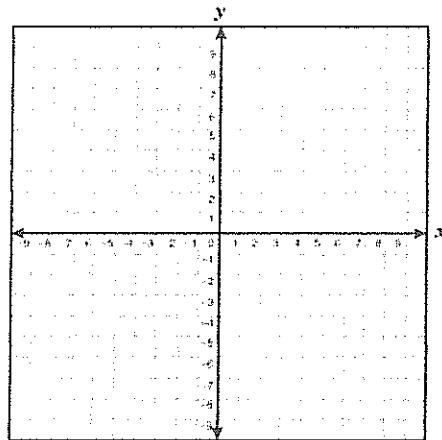Use the method for graphing as directed for each equation.
SHOW YOUR STEPS – DO NOT USE A CALCULATOR
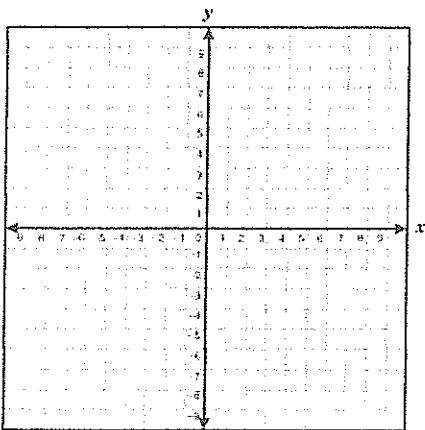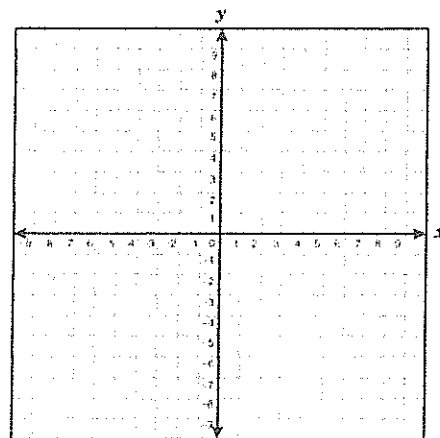## https://www.youtube.com/watch?v=L5kDZ7iejkA

1) $x - 3y = 6$
(t-table)

2) $y = 2x - 5$
(slope and y-intercept)

3) $3x - 2y = -6$
(x- and y-intercepts)

4) $x = -4$
(method of your choice)

Simplify Monomials and Polynomials

Simplify the following. Read your signs carefully. All answers should have positive exponents.

SHOW YOUR STEPS – DO NOT USE A CALCULATOR

https://www.youtube.com/watch?v=xdoU6WJ8wJQ

https://www.youtube.com/watch?v=78JEISSvTdk

https://www.youtube.com/watch?v=kSCSiGfJOjw

1) $x^4 \cdot x^3$	2) $(a^5)^2$
3) $(3a^4)^3 (2a^2)^4$	4) $\dfrac{(2x^3 y^4)^3}{6xy^3}$
5) $\dfrac{24x^6 y^{-5} z^{-6}}{18x^{-3} y^{-5} z^{-2}}$	6) $(-6x^3 + 5x^2 - 8x + 9) + (17x^3 + 2x^2 - 4x - 13)$
7) $(-4x^3 - x^2 y + xy^2 + 3y^3) - (x^3 + 2x^2 y - y^3)$	8) $3x^2 y(4x^2 + 5xy - 3y^2)$
9) $(x - 5)(x + 7)$	10) $(x - 2)(x^2 + 2x + 4)$