Name: Key 12/14/2017 Algebra I – Semester Test

1) Solve the following inequalities for the given variable and graph all your answers. Be sure to show all your work!! Leave your answers in the simplest fraction form.

(6) a) $-3x - 4 \leq 20$ $+4 \quad +4$ $\frac{-3x \leq 24}{-3 \quad -3}$ $x \geq -8$ | b) $\frac{x}{5} - 8 > 25$ $+8 \quad +8$ $5 \cdot \frac{x}{5} > 33 \cdot 5$ $x > 165$

2) Find the x- and y- intercept of the following

(6) a) $4x + 6y = 12$ (3, 0) (0, 2) | b) $2y - 10x = 20$ (−2, 0) (0, 10)

3) Solve the following equations for the given variable. Be sure to show all your work!

(4) a) $x + 9 = 2$ $-9 \quad -9$ $x = -7$ | b) $\frac{7x}{7} = \frac{21}{7}$ $x = 3$

4) Write the following in words.

(4) a) $5x - 3$ 5 times x minus 3 | b) $2 * (x - 7)$ 2 times the quantity x minus 7

5) Graph the following inequalities.

(4) a) $4 > x$ $x < 4$ | b) $x \leq 10$ | c) $x > 3$ | d) $-4 \leq x$ $x \geq -4$

6) Solve the following equations for the specified variable. Be sure to show all your work!!!! Leave your answers in the simplest fraction form.

(6) a) Solve for l: $P = 2w + 2l$ $-2w \quad -2w$ $\frac{P - 2w}{2} = \frac{2l}{2}$ | b) Solve for T: $\frac{PV}{nR} = \frac{nRT}{nR}$

7)

(2) a) If you calculate the slope between two points and get zero on top, what do you say the slope is? $\frac{0}{\#} = 0$

b) If you calculate the slope between two points and get zero on bottom, what do you say the slope is? $\frac{\#}{0}$ = und.

8) Solve the following inequalities for the given variable and graph your answers if you can. Be sure to show all your work!!!

(6) a) $5 \leq 4x - 3 \leq 9$ $+3 \quad +3 \quad +3$ $5 \leq 4x \leq 12$ $2 \leq x \leq 3$ | b) $x + 2 < -2$ OR $x - 2 > 2$ $-2 \quad -2 \quad +2 \quad +2$ $x < -4$ OR $x > 4$

9) Solve the following equations for the given variable. Be sure to show all your work!!!

(6) a) $3x + 5 = 5 - 2x$ $+2x \quad -5 \quad -5 + 2x$ $5x = 0$ $x = 0$ | b) $2(6x + 9) = 6(2x + 3)$ $12x + 18 = 12x + 18$ $-12x \quad -12x$ $18 = 18$ All Reals

10) Solve the following equations for the given variable. Be sure to show all your work!!!! Leave your answers in the simplest fraction form.

(6) a) $\frac{9}{2} = \frac{18}{x+1}$ $9x + 9 = 36$ $x = 3$ | b) $\frac{5x}{9} = \frac{1}{4}$ $20x = 9$ $x = \frac{9}{20}$

11) What is the order of operations? (in words)

(3) Parentheses, Exponents, Multiply, divide, add, Subtract.

12)

(2) a) Which side should the variable always be on to properly graph an inequality? Left.
b) When you multiply or divide by a negative, you have to switch the inequality sign.

13) Solve the following equations for the given variable. Be sure to show all your work!! Leave your answers in the simplest fraction form.

(6) a) $3x - 2 = 10$ $+2 \quad +2$ $\frac{3x}{3} = \frac{12}{3}$ $x = 4$ | b) $\frac{3}{8}x = 15 \cdot \frac{8}{3}$ $x = 40$

(4) 14) Translate the following words into EXPRESSIONS!
a) y minus the quotient of 4 and b. $y - 4/b$ | b) 2 times the sum of x and 9 $2 \cdot (x+9)$

15) Given the following pairs points, calculate the slope of the line that passes through them. Leave your answer in fraction form.

(4) a) $(2,-5)$ & $(-8,9)$ $\frac{9-^-5}{-8-2} = \frac{14}{-10} = \frac{7}{-5}$ | c) $(-8,0)$ & $(7,16)$ $\frac{6-0}{7--8} = \frac{16}{15}$

(3) 16) Colten is standing next to a telephone pole. Colten stands 5.5' tall and casts a shadow 4.2' long. If the telephone pole is casting a 15' shadow, how tall is the pole?
$x = 19.6'$ ~~$x = 26.19'$~~ $\frac{5.5}{4.2} = \frac{x}{15}$

(4) 17) Write the following in words. Do NOT solve it.
a) $2x - 5 > -10$ 2 times x minus 5 is greater than -10 | b) $7 + x \leq 8$ 7 plus x is less than or equal to 8.

(4) 18) Given the following information, write the equation of the line. Use any form you want.
a) slope = -4, y-inter: $(0,7)$ $y = -4x + 7$ | b) slope = 2, Point: $(-2,10)$ $y = 2x + b$ $(10) \quad (-2)$ $10 = -4 + b$ $b = 14$ $y = 2x + 14$

(4) 19) Identify the independent and dependent variables in the following scenarios.
a) There are fewer seats available to sit in as more students come to class.
b) Since the snow is here, the plants are starting to die off.
c) Students' grades go up as they do their homework.
d) The more stairs students go up, the more water they drink.

(2) 20) The perimeter of a square is $P = 32in$. What is the side length of the square?
$4x = 32$ $x = 8in$

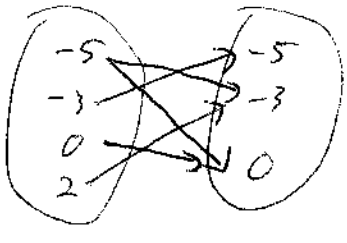
(2) 21) Draw a graph to represent Dylan's distance from home in the following story. Dylan woke up at 3am, left his house, walked to his hunting-stand, waited 10 hours for a deer, got frustrated, shot a cow, and carried the cow home. It was only a calf.

(3) 22) Solve for x
$\frac{y-1}{3} = \frac{3x}{3}$ $y = 3x + 1$ $-1 \quad -1$

23) $\{(-5,-3),(-3,-5),(2,-3),(-5,0),(0,0)\}$

(4) a) Give the domain and range of the following relation:
b) Make a mapping diagram for the relation above.

D: $\{-5,-3,0,2\}$
R: $\{-5,-3,0\}$



Name: Key 1/30/2018 Algebra I – Test 4

1) Given the following equations, identify the slope and y-intercept.

a) $y = x - 5$	b) $y = 8$	c) $y = \frac{1}{2}x + 6.3$
(3) m = 1	m = 0	m = 1/2
b = −5	b = 8	b = 6.3

2) Fill in the blanks for the definitions of slope:

(3) $$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

3) There are three different ways of writing the equation of a line. What are they called and what do they look like?

(3)
a) Standard form $Ax + By = C$

b) Slope-inter $y = mx + b$

c) point-slope $y = m(x - x_1) + y_1$

4) One day you rent 3 movies for \$25. Another day you rent 8 movies for \$50.

a) Let x represent the number of ~~pool passes~~ movies and y represent the cost. Write 2 ordered pairs for this story.

b) Find the slope of the line. 5

(5) c) Find the equation of the line. $y = 5(x-3)+25 \rightsquigarrow y = 5x + 10$

d) What does the slope of the line mean (in terms of units)? \$5 per movie.

e) What does the y-intercept mean (in terms of units)?

\$10 fee without any movies.

(3,25) (8,50) $\frac{50-25}{8-3} = \frac{25}{5} = 5$

5) Given the following information, write the equation of the line. Use any form you want.

a) slope = −4, y-inter: (0, 7)

(6) $y = -4x + 7$

b) (−5, 0), (0, 10) $\frac{10-0}{0-(-5)} = \frac{10}{5} = 2$

$y = 2(x+0) + 10$

$y = 2x + 10$

6) Given the following points, find the equation of the line that passes through each pair of points. You may leave your answer in any form of a line that you like. [i.e. slope-intercept, point-slope, or standard]

a) (−1, 2) & (4, 12)

(6) $\frac{12-2}{4-(-1)} = \frac{10}{5} = 2$

$y = 2(x-4) + 12$

$y = 2x + 4$

b) (3, 0) & (2, −4) $\frac{-4-0}{2-3} = \frac{-4}{-1} = 4$

$y = 4(x-2) - 4$

$= 4x - 8 - 4$

$y = 4x - 12$

7) Lab results: An experiment was done to measure the time it takes for an engine to cool down. They measured the temperature of the radiator fluid (°F) and time (sec). The best fit line is given below. The x- and y-axis start at zero and count by tens.

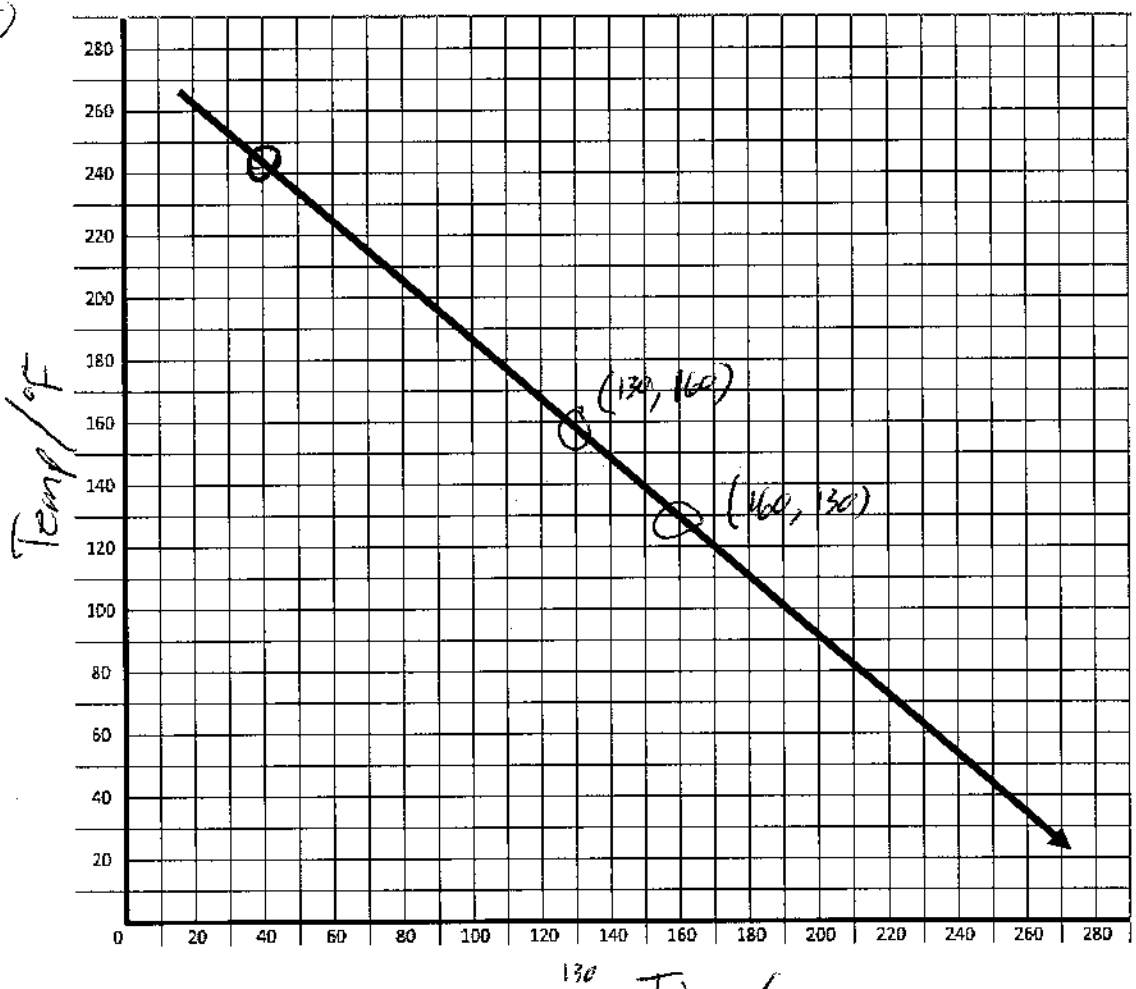
1 a) Label the axes.

2 b) Just like in your experiment, circle two "nice" points and find the equation of the line.

1 c) After 40secs, what temperature is the engine? 245°F

1 d) How long until the engine is 90°F? 200 sec.

(5)



$$\frac{160-130}{130-160} = \frac{30}{-30} = -1$$

$$y = -1(x-130)+160$$

$$= -x+130+160$$

$$\boxed{y = -x+290}$$

Name: Key 3/1/2018 Algebra I – Test 5

1)

a) When dealing with radicals, we do not want a $\sqrt{\ }$ in the denominator and a denominator in the radical.

b) When dividing with the same base, you keep the base and subtract the exponents. (5)

c) In the radical $\sqrt[4]{\ }$, 4 is the index. We say it is a 4 for 4 deal.

d) When writing a number in scientific notation, there should be 1 digit/s before the decimal.

2) Simplify the following expressions. Leave your answers in exponent form with positive exponents.

a) $\frac{15x^9y^5}{20x^4y^9}$ $\frac{3x^5}{4y^4}$

b) $3x^{10} * 6x^{-18}$ $\frac{18}{x^8}$

c) $2x^9y^4 * 9x^5y^{-10}$ $\frac{18x^{14}}{y^6}$

d) $(4^3x^9y^3 * x^2)^6$ $4^{18}x^{66}y^{18}$

(12)

3) Simplify the following expressions. Write your answers in scientific notation.

a) $\frac{6*10^{-11}}{30*10^5}$ $.2 \times 10^{-16}$ 2×10^{-17}

b) $2.5 * 10^5 * 7.4 * 10^{-9}$ 1.85×10^{-3}

(6)

4) Rationalize/simplify the following radicals.

a) $\sqrt[3]{\frac{9}{25}}$ $= \frac{3}{5}$

b) $\frac{8}{\sqrt[3]{x}}$ $\frac{\sqrt[3]{x \cdot x}}{x \cdot x} = \frac{8\sqrt[3]{x^2}}{x}$

c) $\frac{1}{\sqrt[3]{27}}$ $\frac{1}{3}$

d) $\sqrt[2]{\frac{1}{3}}$ $\frac{\sqrt{3}}{3}$

(12)

5) Rationalize/simplify the following radicals.

(12)

a) $\sqrt[3]{16}$ $2\sqrt[3]{2}$

$16 = 2 \cdot 2 \cdot 2 \cdot 2$

b) $\sqrt{27}$ $3\sqrt{3}$

$27 = 3 \cdot 3 \cdot 3$

c) $\sqrt[2]{24x^{10}y^{15}}$ $2x^5y^7\sqrt{6y}$

$24 = 8 \cdot 3 = 2 \cdot 2 \cdot 2 \cdot 3$

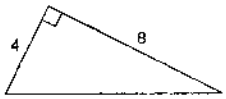
d) $\sqrt[3]{16x^4y^6}$ $2xy^2\sqrt[3]{2x}$

$16 = 4 \cdot 4 = 2 \cdot 2 \cdot 2 \cdot 2$

6) Solve the following triangles. Leave your answers in the simplest radical form.

(6)

a)



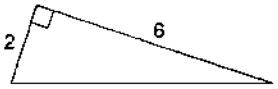
$4^2 + 8^2 = c^2$

$16 + 64 = c^2$

$\sqrt{c^2} = \sqrt{80}$

$c = 4\sqrt{5}$

b)



$2^2 + 6^2 = c^2$

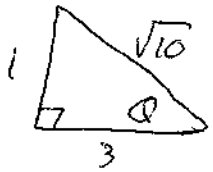
$40 = c^2$

$c = 2\sqrt{10}$

7) Using the triangle on the right and the values given, fill in the following chart.

(6)

Trig Function	a) $a = 1, b = 3, c = \sqrt{10}$
$\sin\theta$	$1/\sqrt{10} = \sqrt{10}/10$
$\cos\theta$	$3/\sqrt{10} = 3\sqrt{10}/10$
$\tan\theta$	$1/3$
$\csc\theta$	$\sqrt{10}$
$\sec\theta$	$\sqrt{10}/3$
$\cot\theta$	3



8) Write the following numbers in scientific notation.

(4)

a) 46.2 4.62×10

b) 1700 1.7×10^3

c) 0.00064 6.4×10^{-4}

d) 9510000 9.51×10^6

9) What are the definitions of the following trigonometric functions

(3)

$\sin(\theta) =$ opp/hyp	$\cos(\theta) =$ adj/hyp	$\tan(\theta) =$ opp/adj
$\csc(\theta) =$ hyp/opp	$\sec(\theta) =$ hyp/adj	$\cot(\theta) =$ adj/opp

Name: Key 3/27/2018 Algebra I – Test 6

1) Write each of the following polynomials in standard form. Then, identify the leading coefficient and name the polynomial. (8)

Polynomial	Standard Form (2)	Leading Coefficient (2)	Name (4)
$3x^2 + 2x^3$	$2x^3 + 3x^2$	2	cubic binomial
$1 - x + 3x^2$	$3x^2 - x + 1$	3	quadratic trinomial
x	x	1	linear monomial
$7x^4$	$7x^4$	7	quartic monomial

2) Simplify each polynomial expression. (12)

a) $5m^2 + 9m^3 + 5m^2 - 2m^4 - 2m^2 + 6m^4$

$4m^4 + 9m^3 + 8m^2$

b) $(ab^2 + 13b - 5a) - (4ab^2 + a - 3b)$

$-3ab^2 + 16b - 6a$ or $-4ab^2 - a + 3b$

c) $(-x^2 + 9xy - 2y) + 3(-y + 2x^2 + 4xy)$

$-3y + 6x^2 + 12xy$

$5x^2 + 21xy - 5y$

d) $(a^2b + b^3 + ab^2) - 2(4a^2b - a^2b + b^2)$

$-8a^2b + 2a^2b - 2b^2$

$-5a^2b + b^3 + ab^2 - 2b^2$

3) Use the picture to answer the following questions. (4)

	$4x + 8$	
$2x$	$8x^2$	$16x$
$2x + 3$		
3	$12x$	24

$4x + 8$

a) What is the perimeter of this rectangle?

$12x + 22$

b) What is the area of this rectangle?

$8x^2 + 28x + 24$

4) Travis needs to make a frame that is 5ft longer than it is wide. (4)

	w
w	w^2
$+5$	$5w$

a) How much wood does he need for the frame?

$4w + 10$

b) How much space on the wall with this frame and picture take up?

$w^2 + 5w$

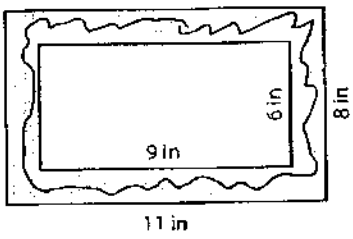
5) What does F.O.I.L. stand for? (2)

first, outer, inner last.

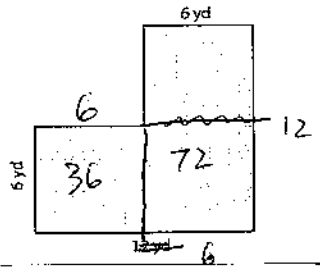
First	#	Last
Constant	0	*****
Linear	1	Monomial
Quadratic	2	Binomial
Cubic	3	Trinomial
Quartic	4	Polynomial with ____ terms
Quintic	5	*****
6^{th}, 7^{th}, 8^{th} Degree	6+	*****

6) Find the area of the following shapes:

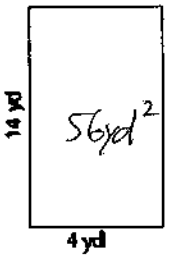
(12)

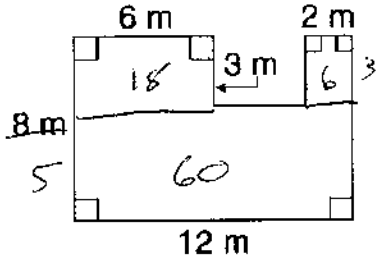
a) 

88 − 54 = 34 in²

b) 

108 yd²

c) 

d) 

84 m²

7) Multiply the following polynomials.

(12)

a) $-2x(x^2+4)$ $-2x^3-8x$

b) $(2x+1)(3x^2+4x+7)$ $6x^3+11x^2+18x+7$

c) $(5x+1)(3x-7)$ $15x^2-32x-7$

d) $(x-2)^2$ x^2-4x+4

	5x	1		
3x	$15x^2$	$3x$		
-7	$-35x$	-7		

	$3x^2$	$4x$	7	
2x	$6x^3$	$8x^2$	$14x$	
1	$3x^2$	$4x$	7	

	x	-2		
x	x^2	$-2x$		
-2	$-2x$	$+4$		

Name: Key 4/26/2018 Algebra I – Test 7

1) Check if the given point is the solution. Show your work!

a) $(3,-1); y \le 5x+7$

$-1 \le 5(3)+7$

$-1 \le 22$

Soln ✓

b) $(0,-2); \begin{cases} y = x-2 \\ 2x+y=-2 \end{cases}$

$-2 = 0-2$ ✓

$-2 = -2$ ✓

Soln

c) $(2,5); y > 6x+11$

$5 > 6(2)+11$

$5 > 23$

no soln ✗

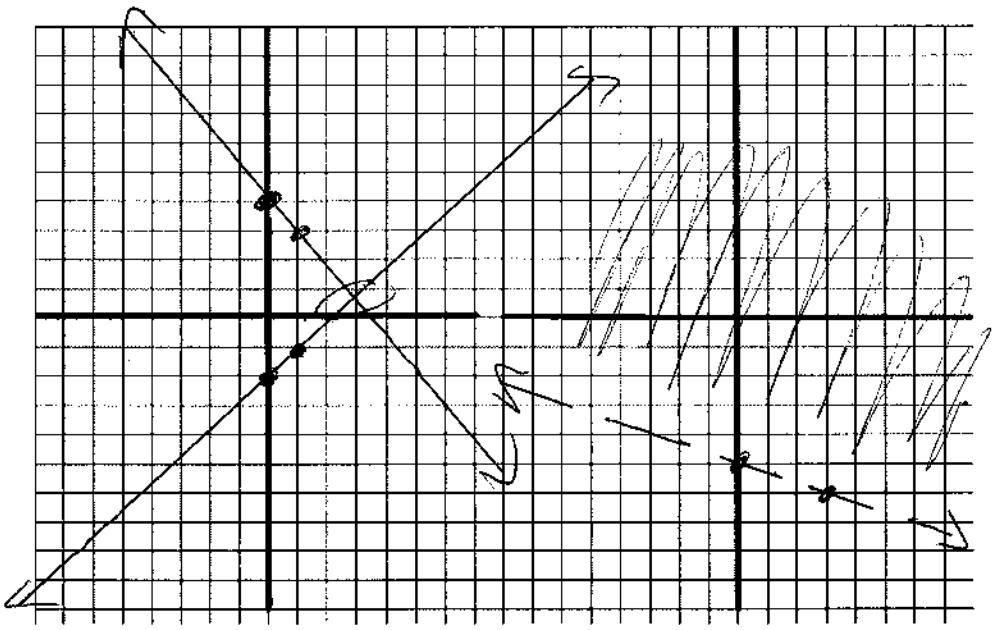
(3)

2) Solve the following by **GRAPHING** them. **Use graph paper!!**

a) $\begin{cases} y = -x+4 \\ y = x-2 \end{cases}$ (3, 1)

b) $y > -\frac{1}{3}x - 5$

(4)



3) Solve the following systems by **SUBSTITUTION**.

a) $\begin{cases} y = 2x-11 \\ -x+y=-4 \end{cases}$

$-x+2x-11 = -4$

$x-11 = -4$

$+11 \quad +11$

$x = 7$

$y = 2(7)-11$

$= 3$

(7, 3)

b) $\begin{cases} 4x+y=0 \\ x+y=-3 \end{cases}$ $y = -4x$

$x - 4x = -3$

$-3x = -3$

$x = 1$

$y = -4(1)$

$= -4$

(1, −4)

(6)

4) Solving the following systems by **ELIMINATION**.

a) $\begin{cases} 3x-y=7 \\ 2x+y=3 \end{cases}$

$5x = 10$

$x = 2$

$3(2)-y=7$

$6-y=7$

$-y=1$

$y=-1$

(2, −1)

b) $\begin{cases} 2x+y=3 \\ x-2y=-1 \end{cases}$ $\times 2$

$4x+2y=6$

$5x = 5$

$x = 1$

$2(1)+y=3$

$2+y=3$

$y=1$

(1, 1)

(6)

5) For the following stories, **ONLY** setup a system of equations that could be used to answer the question.

(5) a) Travis bought 5 pens and 2 pencils for \$5. Colten bought 2 pens and 5 pencils for \$4. How much does it cost to buy a pen and a pencil? $\begin{cases} 5x+2y=5 \\ 2x+5y=4 \end{cases}$ $x = \$0.81$ $y = \$0.48$

b) Shyneah wants to top Allison's party. She invites 20 friends. Each friend can either have a bottle of Mountain Dew or a bottle of Sprite. She spent \$46 on pop. Each Sprite costs \$2 and each Mountain Dew costs \$3. How many of each kind of pop did she buy? $\begin{cases} x+y=20 \\ 3x+2y=46 \end{cases}$ $x = 6$ MD $y = 14$ sprite.

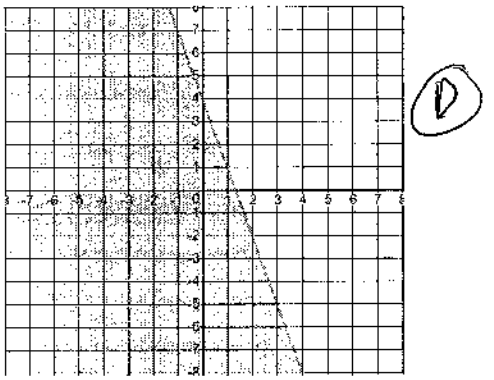
c) Ryleigh and Josie are going to try their experiment again. This time they will blow up 2 bottles. After surrounding them with firecrackers, they take off running in different directions. If **together** they run for 12 seconds and Ryleigh uses a jetpack to go 4 times as long as Josie, how long does each go? $\begin{cases} x+y=12 \\ x=4y \end{cases}$ $x = 9.6$ sec $y = 2.4$ sec

d) Ryleigh and Josie do not make it away safely this time. In fact, all of Shyneah's friends (including Shyneah) got sprayed with pop or plastic. If 6 times more people get splashed with pop than with plastic, how many people were hit with pop? $\begin{cases} x+y=21 \\ x=6y \end{cases}$ $x = 18$ pop $y = 3$ plastic.

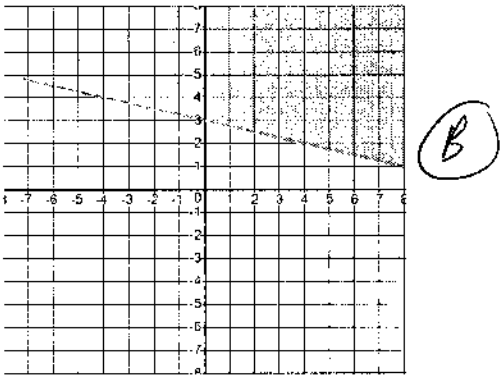
6) Match the following linear inequalities to their graphs.

A) $y \leq \frac{1}{4}x + 3$ | B) $y > -\frac{1}{4}x + 3$ | C) $y \geq 3x + 4$ | D) $y < -3x + 4$

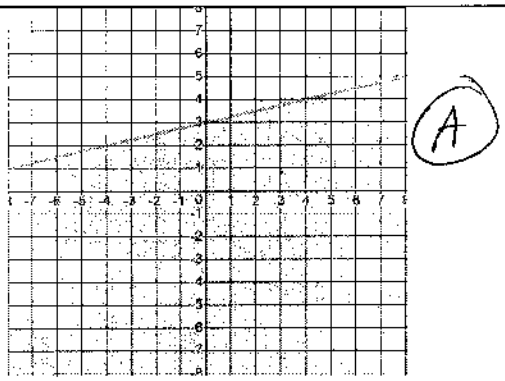
(4)



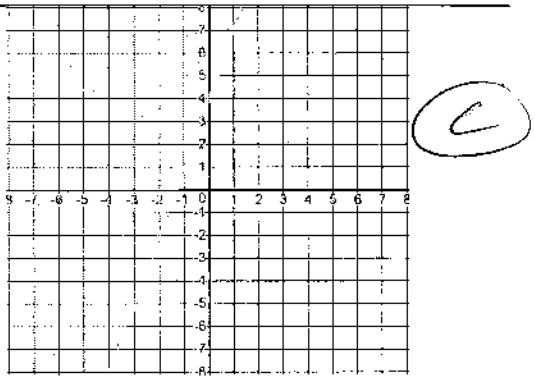
D



B



A



C

Name: Key 1/12/2018 Algebra I – Quiz 13

1) Match the following forms with their definitions

C	W-2	A. form used by employees to inform employers of exemptions
A	W-4	B. form used to report income to the state
D	1040	C. form used by employers to report income paid to an employee
B	ND-1	D. form used to report income to the IRS

(3)

m b

2) Given the following equations, identify the slope and y-intercept.

a) $y = 7x + 95$ (3) $m = 7$, $b = 95$

b) $y = \frac{9}{2}x + 4.1$ $m = 9/2$, $b = 4.1$

c) $y = 1.25x - 5$ $m = 1.25$, $b = -5$

3) Find the slope of the line that passes through the following points.

a) $(0, -6)$ & $(-5, -5)$ (3) $-5 - -6 = 1$, $-5 - 0 = -5$

b) $(-8, 6)$ & $(-5, -7)$ $-7 - 6 = -13$, $-5 - -8 = 3$

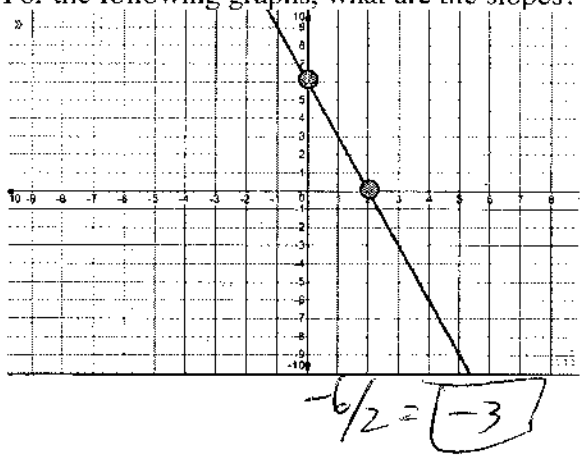
4) Match the following forms with their definitions

(2)

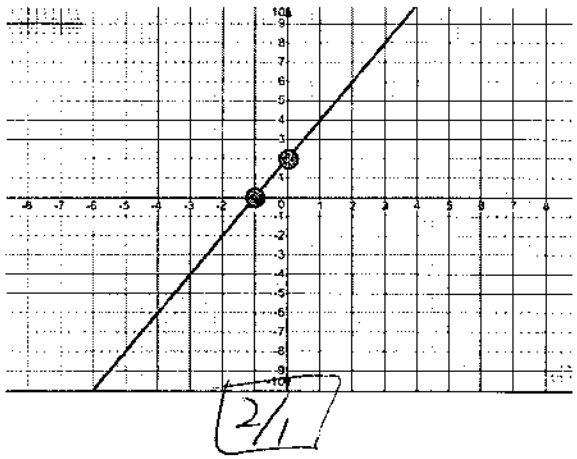
B	$y = mx + b$	A. Standard form
C	$y = m(x - x_1) + y_1$	B. Slope-intercept form
A	$Ax + Bx = C$	C. Point-slope form

5) For the following graphs, what are the slopes?

(2)



$-6/2 = -3$



$2/1$

6) Given the following information, write the equation of the line. Use any form you want.

a) slope $= -4$, y-inter: $(0, 8)$ (3) $y = -4x + 8$

b) slope $= -2$ $(2, 1)$ $1 = -2(2) + b$, $+4 \quad +4$, $5 = b$, $y = -2x + 5$

Name: Key 1/19/2018 Algebra I – Quiz 14

1) Fill in the blanks for the definitions of slope:

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } \underline{y}}{\text{change in } \underline{x}} = \frac{y_2 - y_1}{x_2 - x_1}$$

2) Given the following pairs points, find the equation of the line that passes through them.

a) $(0,6)$ & $(2,-2)$ $-2-6=-8$, $2-0=2$, $m=-4$

$y=-4(x-0)+6$ $(y=-4x+6)$

b) $(-8,6)$ & $(-5,12)$ $12-6=6$, $-5-8=3$, $m=2$

$y=2(x-8)+6$

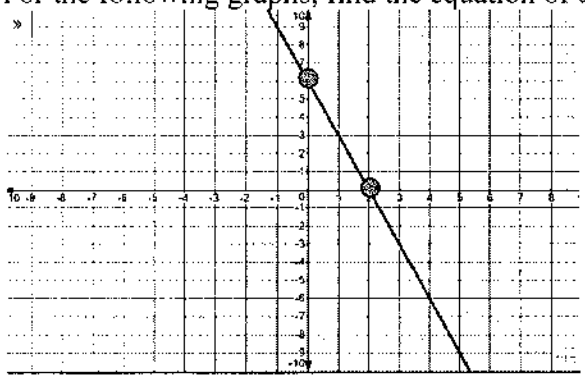
$y=2x+16+6$

$(y=2x+22)$

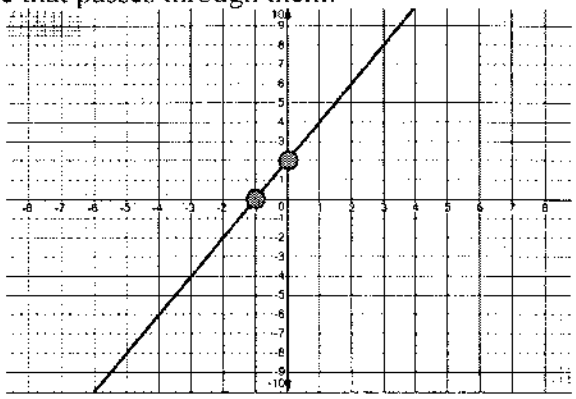
3) Match the following forms with their definitions

B	$y = mx + b$	A. Standard form
C	$y = m(x - x_1) + y_1$	B. Slope-intercept form
A	$Ax + Bx = C$	C. Point-slope form

4) For the following graphs, find the equation of the line that passes through them.



$y=-3x+6$



$y=2x+2$

5) One day you buy 2 pool passes for \$12. Another day you by 8 pool passes for \$30.

a) Let x represent the number of pool passes and y represent the cost. Write 2 ordered pairs for this story.

b) Find the slope of the line.

c) Find the equation of the line.

d) What does the slope of the line mean (in terms of units)?

e) What does the y-intercept mean (in terms of units)?

$(2,12)$ $(8,30)$

$30-12=18$

$8-2=6$ $=3$

$y=3(x-2)+12$

$=3x-6+12$

$(y=3x+6)$

d) The cost per pass.

e) A fee. The amount it cost without buy any passes.

Name: Key 2/8/2018 Algebra I – Quiz 17

1) Multiply/divide the following expressions. Write your answer with positive exponents.

a) $(x^3y^7)^6$ $x^{18}y^{42}$

b) $(x^6y^{-8})^{-5}$ $\frac{y^{40}}{x^{30}}$

2) Fill in the blanks:

a) With a power to a power, you multiply the exponents. (ex. $(x^2)^3$)

b) When writing a number in scientific notation, there should be 1 digit/s before the decimal.

c) When dividing with the same base, you keep the base and subtract the exponents

d) In the radical $\sqrt[4]{\ }$, 4 is the index. We say it is a 4 for 1 deal.

3) Simplify the following radicals.

a) $\sqrt{48}$ $4\sqrt{3}$

$4 \cdot 12$, $2 \cdot 2 \cdot 3 \cdot 4$, $2 \cdot 2$

b) $\sqrt[3]{24x^7y^6}$ $2x^2y^2\sqrt[3]{3x}$

$8 \cdot 3$, $2 \cdot 2 \cdot 2$

4) Write the following in scientific notation.

a) 123400 1.234×10^5

b) 0.0009876 9.876×10^{-4}

5) Multiply/divide the following expressions. Write your answer with positive exponents.

a) $2x^9 * 6x^{-14}$ $\frac{12}{x^5}$

b) $4x^9y^3 * 3x^2$ $12x^{11}y^3$

6) Write the following in standard form.

a) $(-5)^3$ -125

b) $(-8)^4$ 4096

Name: Key 2/16/2018 Algebra I – Quiz 18

1) Fill in the blanks:

a) There are two things you do not want with radicals. You do not want a radical in the denominator. You do not want denominator in the radical.

b) In the radical $\sqrt[4]{\ }$, 4 is the index. We say it is a 4 for 1 deal.

2) Simplify the following radicals.

a) $\sqrt{56}$ $2\sqrt{14}$

$7 \cdot 8$, $8 = 2 \cdot 2 \cdot 2$

b) $\sqrt[3]{81x^{10}y^{24}}$ $3x^3y^8\sqrt[3]{3x}$

$9 \cdot 9$, $9 = 3 \cdot 3$, $x^{10} = x^9 \cdot x$, $y^{24} = y^8 \cdot y^8 \cdot y^8$

3) Rationalize/simplify the following radicals.

a) $\sqrt[2]{\frac{1}{x}} \cdot x$ $\frac{1}{x}\sqrt{x}$ or $\frac{\sqrt{x}}{x}$

b) $\frac{2}{\sqrt[3]{9}} \cdot \sqrt[3]{3}$ $\frac{2\sqrt[3]{3}}{3}$

$3 \cdot 3$

4) Rationalize/simplify the following radicals.

a) $\sqrt{\frac{81}{16}}$ $= \frac{9}{4}$

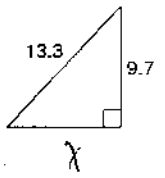
$4 \cdot 4$

b) $\frac{1}{\sqrt[3]{8}}$ $\frac{1}{2}$

$2 \cdot 2 \cdot 2$

5) Solve the following triangles. Leave your answers in the simplest radical form.

a)



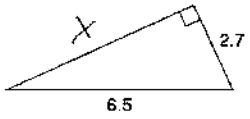
$x^2 + 9.7^2 = 13.3^2$

82.8

$x^2 = 94.15$

$x = 8.95$ 9.1

b)



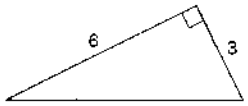
$2.7^2 + x^2 = 6.5^2$

$x^2 = 34.96$

$x = 5.91$

6) Solve the following triangles. Leave your answers in the simplest radical form.

a)



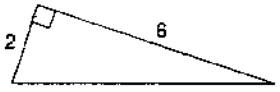
$3^2 + 6^2 = x^2$

$\sqrt{x^2} = \sqrt{45}$

$9 \cdot 5$, $9 = 3 \cdot 3$

$x = 3\sqrt{5}$

b)



$2^2 + 6^2 = x^2$

$\sqrt{40} = \sqrt{x^2}$

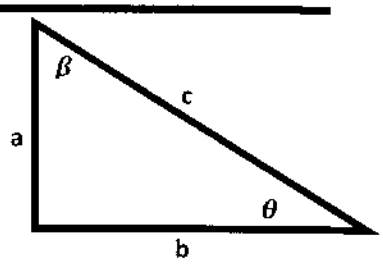
$4 \cdot 10$, $4 = 2 \cdot 2$, $10 = 2 \cdot 5$

$x = 2\sqrt{10}$

Name: Key 2/23/2018 Algebra I – Quiz 19

1)

Using the triangle on the right and the values given, find all the missing sides and angles. in the following chart.



Given:	θ	β	a	b	c
a)	45°	45°	7	7	$7\sqrt{2}$
b)	53.1°	36.9°	4	3	5

$7^2+7^2=c^2$

$\sqrt{98}=\sqrt{c^2}$

$2 \quad 49$

$7\sqrt{2}=c$

$4^2+3^2=c^2$

$\sqrt{25}=\sqrt{c^2}$

$5=c.$

2) What are the definitions of the following trigonometric functions

$\sin(\theta) =$ opp/hyp

$\cos(\theta) =$ adj/hyp

$\tan(\theta) =$ opp/adj

$\csc(\theta) =$ hyp/opp

$\sec(\theta) =$ hyp/adj

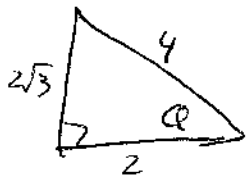
$\cot(\theta) =$ adj/opp.

3) Each of the trig functions given above are abbreviations. What do each of the abbreviations stand for?

Sine, cosine, tangent, cosecant, secant, cotangent.

4) Using the triangle on the right and the values given, fill in the following chart.

Trig Function	a) $a = 2\sqrt{3}, b = 2, c = 4$
$\sin\theta$	$\sqrt{3}/2 = \frac{2\sqrt{3}}{4}$
$\cos\theta$	$2/4 \to \frac{1}{2}$
$\tan\theta$	$2\sqrt{3}/2 = \sqrt{3}$
$\csc\theta$	$2/\sqrt{3} = 2\sqrt{3}/3$
$\sec\theta$	2/1
$\cot\theta$	$\frac{1}{\sqrt{3}} = \sqrt{3}/3.$



Name: Key 3/16/2018 Algebra I – Quiz 21

1) Put the following polynomials in standard form and identify the leading coefficient.

a) $7x^3 + x - 5x^6$ $-5x^6+7x^3+x$ L.C. -5

b) $5x^2 - x^5 + 8 - 3x^3 + 2x$ $-x^5-3x^3+5x^2+2x+8$ L.C. -1

2) Multiply the following expressions.

a) $(x-1)(x+3)$ x^2+2x-3

b) $(x+2)(x^2-2x+3)$ x^3-x+6

3) Multiply the following expressions.

a) $x(x+2)$ x^2+2x

b) $x^2(x^3-5x)$ x^5-5x^3

4) What does F.O.I.L. stand for?

first, outer, inner, last

5) Classify the following polynomials by their degree and number of terms.

a) $x^2 + 3x - 2$ quadratic trinomial

b) 8^2 constant monomial

c) $7 + x$ linear binomial

d) $x^3 + 6^4x$ cubic binomial.

6) Simplify the following expressions.

a) $x^2 + x + 3x + 2x^2$ $3x^2+4x$

b) $3x^3 + 2x - 1 - x^3 - x$ $2x^3-3x-1$

	x	-1		
x	x^2	$-x$		
$+3$	$3x$	-3		

	x	2		
x^2	x^3	$2x^2$		
$-2x$	$-2x^2$	$-4x$		
3	$3x$	6		

Name: Key 4/13/2018 Algebra I – Quiz 25

1) Solve the following systems by **ELIMINATION**.

a) $\begin{cases} 2x - 3y = -6 \\ x + 3y = 15 \end{cases}$

$3x = 9$

$x = 3$

$3 + 3y = 15$

$3y = 12$

$y = 4$

$(3, 4)$

b) $\begin{cases} 4x - y = -5 \\ -2x + 3y = 10 \end{cases}$

$-4x + 6y = 20$

$4x - y = -5$

$5y = 15$

$y = 3$

$4x - 3 = -5$

$4x = -2$

$x = -.5$

$(-.5, 3)$

2) Solve the following systems of equations by **SUBSTITUTION**.

a) $\begin{cases} y = x + 5 \\ x + y = 5 \end{cases}$

$x + x + 5 = 5$

$2x = 0$

$x = 0$

$y = 0 + 5$

$= 5$

$(0, 5)$

b) $\begin{cases} y - 2x = 2 \\ y + x = +1 \end{cases}$

$-x = 3$

$x = -3$

$y - -3 = -1$

$y + 3 = -1$

$y = -4$

$(-3, -4)$

3) For the following stories, **ONLY** setup a system of equations that could be used to answer the question.

a) Travis bought 4 DVD's and 2 candy bars for $19. Colten bought 2 DVD's and 4 candy bars for $15. How much does it cost to buy a DVD and a candy bar?

x y

$\begin{cases} 4x + 2y = 19 \\ 2x + 4y = 15 \end{cases}$

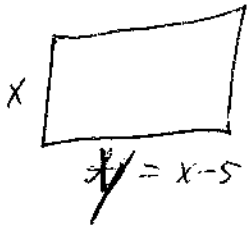
b) Morgan spent $134 on 2 adult tickets and 3 youth tickets at an amusement park. McKenna spent $146 on 3 adult tickets and 2 youth tickets. What is the price of a youth ticket?

x y

$2x + 3y = 134$

$3x + 2y = 146$

c) The width of a rectangle is 5m shorter than the length. The perimeter of the rectangle is 30m. What are the dimensions of the rectangle?



$\begin{cases} y = x - 5 \\ 2x + 2y = 30 \end{cases}$

Name: Key. 4/20/2018 Algebra I – Quiz 26

1) Solve the following systems by **ELIMINATION**.

a) $\begin{cases} 1x + 2y = 5 \\ 3x + 4y = 9 \end{cases}$

$-2x - 4y = -10$

$X = -1$

$1(-1) + 2y = 5$

$+1 \quad +1$

$2y = 6$

$y = 3$

$(-1, 3)$

b) $\begin{cases} -2x + 4y = -20 \\ 4x - 6y = 36 \end{cases}$

$-4x + 8y = -40$

$2y = -4$

$y = -2$

$-2x + 8 = -20$

$-2x = -28$

$x = 14$

$(14, -2)$

2) Solve the following systems of equations by **SUBSTITUTION**.

a) $\begin{cases} y = x + 6 \\ x + y = 8 \end{cases}$

$x + x + 6 = 8$

$2x + 6 = 8$

$2x = 2$

$x = 1$

$y = 1 + 6$

$= 7$

$(1, 7)$

b) $\begin{cases} y - 2x = 4 \\ y - x = -2 \end{cases}$

$+x \quad +x$

$y = x - 2$

$x - 2 - 2x = 4$

$-x - 2 = 4$

$-x = 6$

$x = -6$

$y = -6 - 2$

$= -8$

$(-6, -8)$

3) Answer the following questions.

a) Matthew bought 5 DVD's and 3 candy bars for \$33. Marcus bought 2 DVD's and 6 candy bars for \$64.5. How much does it cost to buy a DVD and a candy bar?

$-2(5x + 3y = 33)$

$2x + 6y = 64.5$

$-10x - 6y = -66$

$2x + 6y = 64.5$

$-8x = 1.5$

$x = \$.19$

$y = \$10.68$

b) Taya spent \$35 on 2 adult tickets and 3 youth tickets at an amusement park. Dana spent \$85 on 4 adult tickets and 9 youth tickets. What is the price of a youth ticket?

$-2(2x + 3y = 35)$

$4x + 9y = 85$

$-4x - 6y = -70$

$4x + 9y = 85$

$3y = 15$

$y = \$5$ per youth

$4x + 9 \cdot 5 = 85$

$4x + 45 = 85$

$4x = 40$

$x = \$10$ per adult.

c) A plane flying to Minneapolis with a tailwind averages 160km/hr. On the return trip, the plane only averaged 120km/hr into the same wind. What is the speed of the wind?

$x + y = 160$

$x - y = 120$

$2x = 280$

$x = 140$ km/hr

$y = 20$ km/hr

d) The difference of two numbers is 22. Their sum is 96. What are the two numbers?

$x - y = 22$

$x + y = 96$

$2x = 118$

$x = 59$

$y = 37$