

Name: key

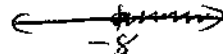
Algebra I - Semester Test

12/15/2016

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.

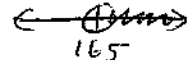
a) $-3x - 4 \leq 20$
 $\begin{array}{r} -3x - 4 \leq 20 \\ +4 \quad +4 \\ \hline -3x \leq 24 \end{array}$

$x \geq -8$

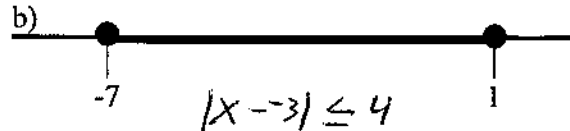
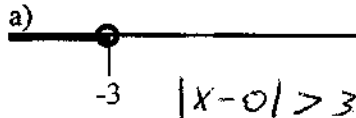


b) $\frac{x}{5} - 8 > 25$
 $\begin{array}{r} \frac{x}{5} - 8 > 25 \\ +8 \quad +8 \\ \hline \frac{x}{5} > 33 \end{array}$

$x > 165$



2) Write an **absolute value inequality** for each of the following graphs.



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

a) $x + 9 = 2$
 $\begin{array}{r} x + 9 = 2 \\ -9 \quad -9 \\ \hline x = -7 \end{array}$

b) $7x = 21$
 $\begin{array}{r} 7x = 21 \\ \div 7 \quad \div 7 \\ \hline x = 3 \end{array}$

4) Write the following in words.

a) $5x - 3$ 5 times x minus 3

b) $2 * (x - 7)$ 2 times the difference of x and 7.

5) Graph the following inequalities.

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.

a) Solve for l
 $\begin{array}{r} P - 2w = 2l \\ \frac{P - 2w}{2} = \frac{2l}{2} \\ \frac{P - 2w}{2} = l \end{array}$

b) Solve for T

$\begin{array}{r} PV = nRT \\ \frac{PV}{nR} = \frac{nRT}{nR} \\ \frac{PV}{nR} = T \end{array}$

7) Solve the following inequality and graph your solutions: $x \geq 4$

a) $x \geq 4$ OR $3x + 19 \leq x - 7$
 $\begin{array}{r} 3x + 19 \leq x - 7 \\ -x \quad -x \\ \hline 2x + 19 \leq -7 \\ -19 \quad -19 \\ \hline 2x \leq -26 \\ \div 2 \quad \div 2 \\ \hline x \leq -13 \end{array}$

b) $x - 6 \leq 2x - 10$ AND $x \leq 6$
 $\begin{array}{r} x - 6 \leq 2x - 10 \\ -x \quad -x \\ \hline -6 \leq x - 10 \\ +10 \quad +10 \\ \hline 4 \leq x \end{array}$

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

a) $5 \leq 4x - 7 \leq 9$
 $\begin{array}{r} 5 \leq 4x - 7 \leq 9 \\ +7 \quad +7 \quad +7 \\ \hline 12 \leq 4x \leq 16 \\ \div 4 \quad \div 4 \quad \div 4 \\ \hline 3 \leq x \leq 4 \end{array}$

b) $x + 1 < -1$ OR $x - 1 > 1$
 $\begin{array}{r} x + 1 < -1 \\ -1 \quad -1 \\ \hline x < -2 \end{array}$
 $\begin{array}{r} x - 1 > 1 \\ +1 \quad +1 \\ \hline x > 2 \end{array}$

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

a) $3x + 5 = 5 - 2x$
 $\begin{array}{r} 3x + 5 = 5 - 2x \\ +2x \quad +2x \\ \hline 5x + 5 = 5 \\ -5 \quad -5 \\ \hline 5x = 0 \\ \div 5 \quad \div 5 \\ \hline x = 0 \end{array}$

b) $2(6x + 9) = 6(2x + 3)$
 $\begin{array}{r} 12x + 18 = 12x + 18 \\ -12x \quad -12x \\ \hline 18 = 18 \end{array}$

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

a) $\frac{9}{2} = \frac{18}{x+1}$
 $\begin{array}{r} 9(x+1) = 18 \\ 9x + 9 = 18 \\ -9 \quad -9 \\ \hline 9x = 9 \\ \div 9 \quad \div 9 \\ \hline x = 1 \end{array}$

b) $\frac{5x}{9} = \frac{1}{4}$
 $\begin{array}{r} 20x = 9 \\ \div 20 \quad \div 20 \\ \hline x = \frac{9}{20} \end{array}$

11) What is the order of operations?

2) Parentheses, exponents, multiply, divide, add, subtract.

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

14) Translate the following words into EXPRESSIONS!

- 4) a) y minus the quotient of 4 and b. $y - 4 \div b$ b) 2 times the sum of x and 9
 $2 \cdot (x + 9)$

3) 15) Solve the following absolute value equation.
 $2|x - 1| + 3 = 5$
 $|x - 1| = 1$
 $x - 1 = 1$
 $x = 2$
 $x - 1 = -1$
 $x = 0$

- 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?

$\frac{5.5}{4.2} = \frac{x}{15}$
 $x = 19.6'$

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.

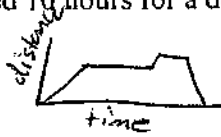
6) 18) Solve the following inequality:

a) $|3x - 2| + 33 \leq 20$
 $-33 \quad -33$
 $|3x - 2| \leq -13$
~~41 results~~
 no soln
 b) $|x - 1| - 5 > -2$
 $+5 \quad +5$
 $|x - 1| > 3$
 $x - 1 > 3$
 $x > 4$
 $-x + 1 > 3$
 $-x > 2$
 $x < -2$

- 4) 19) a) What is the difference between a discrete and a continuous graph? halves
 b) Continuous or discrete: Buy apples from Hugo's.
 c) Continuous or discrete: Gaining weight over Thanksgiving.
 d) Continuous or discrete: Giving gifts at Christmas.

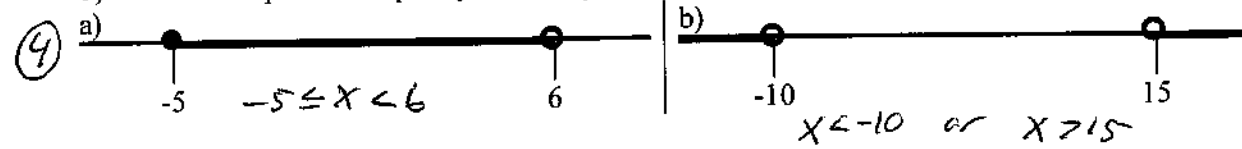
2) 20) The perimeter of a square is $P = 32\text{in}$. What is the side length of the square?
 $4x = 32$
 $x = 8\text{in}$

- 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
 $\frac{y-1}{3} = \frac{x}{3}$
 $y = 3x + 1$

23) Write a compound inequality shown by each graph.



- 3) 24) $\{(-5, -3), (-3, -5), (2, -3), (-5, 0), (0, 0)\}$
 a) Give the domain and range of the following relation:
 b) Make a mapping diagram for the relation above.

$\{-5, -3, 0, 2\}$
 $\{-5, -3, 0\}$



Key

Algebra I

ANSWERS ONLY!!

1A)	$x \geq -8$		13A)	$x = 4$		
1B)	$x > 165$		13B)	$x = 40$		
2A)	$ x - 0 > 3$		14A)	$y - 4 \div 6$		
2B)	$ x - 3 \leq 4$		14B)	$2 \cdot (x + 9)$		
3A)	$x = -7$		15)	$x = 2, 0$		
3B)	$x = 3$		16)	$x = 19.6 \text{ ft}$		
4A)	5 times x minus 3		17A)	See work		
4B)	2 times the diff. of x and 7		17B)	11		
5A)		5B)		18A)	no soln	
5C)		5D)		18B)	no soln	
6A)	$l = (p - 2u) / 2$		19A)	hadres	19B)	discrete
6B)	$T = PV/nR$		19C)	Cont.	19D)	discrete
7A)			20)	$x = 8 \text{ in}$		
7B)			21)	(bottom)		
8A)			22)	$\frac{x-1}{3} = x$		
8B)			23A)	$-5 \leq x < 6$		
9A)	$x = 0$		23B)	$x < -10$ or $x > 15$		
9B)	All Reals.		24A)			
10A)	$x = 3$		D:	$\{-5, -3, 0, 2\}$		
10B)	$x = 9/20$		R:	$\{-5, -3, 0\}$		
11)	parentheses, exponents, multiply	D.K.	24B)			
12A)	left.					
12B)	Negative, switch.					
21)						

Name: key
 Algebra I – Test 4
 2/1/2017

\rightarrow y-intercept

1) There are two important points with a line. Their general forms are: $(0, y)$ and $(x, 0)$. What is the name of each of these points? Be specific.

\rightarrow x-intercept

2) Determine the function that represents the following tables.

Table 10

X	f(x)
4	8
5	10
6	12
7	14
8	16

$f(x) = 2x$

$\frac{2}{1}x + 0$

Table 15

x	f(x)
2	-2
4	-1
6	0
8	1
10	2

$f(x) = \frac{1}{2}x - 3$

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

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

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

a) $(2, -5)$ & $(-8, 9)$

$\frac{9 - (-5)}{-8 - 2} = \frac{14}{-10} = \boxed{-\frac{7}{5}}$

c) $(-8, 0)$ & $(7, 16)$

$\frac{16 - 0}{7 - (-8)} = \frac{16}{15} = \boxed{\frac{16}{15}}$

b) $(3, 4)$ & $(0, 15)$

$\frac{4 - 15}{3 - 0} = \frac{-11}{3} = \boxed{-\frac{11}{3}}$

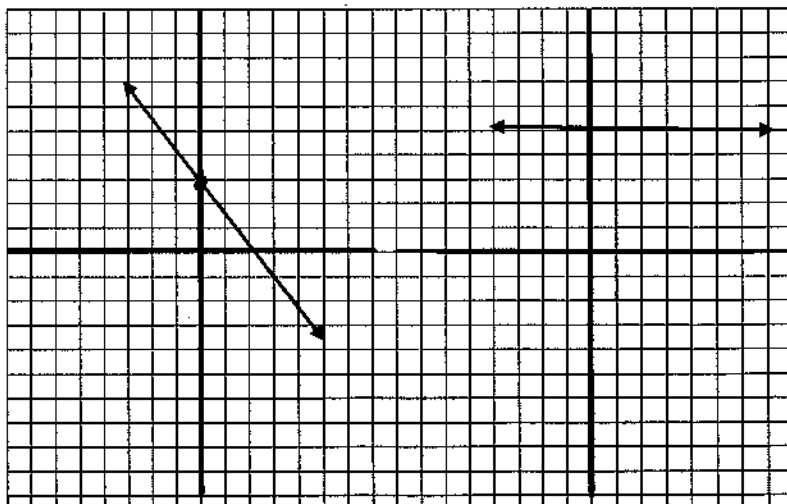
d) $(0, 10)$ & $(-16, 21)$

$\frac{21 - 10}{-16 - 0} = \frac{11}{-16} = \boxed{-\frac{11}{16}}$

5) Given the following lines, figure out what the slope of the lines are.

a) $-\frac{3}{2}$

b) 0



6) Use the First Differences to classify each table as linear or nonlinear.

a)

X	0	1	2	3
Y	0	1	4	9

First differences for X: $+1, +1, +1$
 First differences for Y: $+1, +3, +5$
 Nonlinear

b)

X	3	4	5	6
Y	8	9	10	11

First differences for X: $+1, +1, +1$
 First differences for Y: $+1, +1, +1$
 Linear.

7) Find the slope of the line given the following equation.

a) $9x + 3y = 18$

$\frac{x}{0} \mid \frac{y}{6} \mid \frac{18}{6} \mid 3$ slope = $-\frac{6}{2} = -3$

b) $5y = 15x - 30$

$\frac{x}{2} \mid \frac{y}{-6} \mid \frac{-30}{-6} \mid 5$ slope = $\frac{6}{2} = 3$

8) Graph the following lines on the given graphs.

a) $5x - 2y = 20$

$\frac{x}{4} \mid \frac{y}{-10} \mid \frac{20}{-2} \mid -10$

b) $3x + 2y = 6$

$\frac{x}{2} \mid \frac{y}{-3} \mid \frac{6}{2} \mid 3$



9) What type of correlation would you expect for the following situations? (Positive, negative, or no correlation)

a) The number of people vs. time *positive*

b) The number of cats born vs. ant colonies on a farm *no correlation*

c) The distance you travel vs. the pressure applied to your brakes *negative*

10) If you calculate the slope between two points and get zero on top, what do you say the slope is?

$\frac{0}{\#} = 0$

11) If you calculate the slope between two points and get zero on bottom, what do you say the slope is?

$\frac{\#}{0} = \text{undefined}$

Name: Key

2/28/2017

Algebra I - Test 5

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

(6)

a) $y = x - 5$

$m = 1$

$b = -5$

b) $y = 8$

$m = 0$

$b = 8$

c) $y = \frac{1}{2}x + 6.3$

$m = \frac{1}{2}$

$b = 6.3$

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-intercept

$y = mx + b$

c) Point-slope

$y = m(x - x_1) + y_1$

4) Write the following in SLOPE-Intercept form. Identify what the slope and y-intercept are.

(6)

a) $15x + 5y = 10$

$$\begin{array}{r} -15x \\ \hline 5y = -15x + 10 \\ \hline y = -3x + 2 \end{array}$$

$y = -3x + 2$

$m = -3$
 $b = 2$

b) $-18x + 6y = 12$

$$\begin{array}{r} +18x \\ \hline 6y = 18x + 12 \\ \hline y = 3x + 2 \end{array}$$

$y = 3x + 2$

$m = 3$
 $b = 2$

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

a) slope = -4, y-inter: (0, 7)

b) (-5, 0), (0, 10)

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

(4)

$y = -4x + 7$

$y = 2(x - (-5)) + 0$

$y = 2x + 10$

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]

(6)

a) (0, 2) & (5, 12)

$$m = \frac{12 - 2}{5 - 0} = \frac{10}{5} = 2$$

$y = 2(x - 5) + 12$

$y = 2x + 2$

b) (3, 0) & (0, -4)

$$m = \frac{-4 - 0}{0 - 3} = \frac{-4}{-3} = \frac{4}{3}$$

$y = \frac{4}{3}(x - 3) + 0$

$y = \frac{4}{3}x - 4$

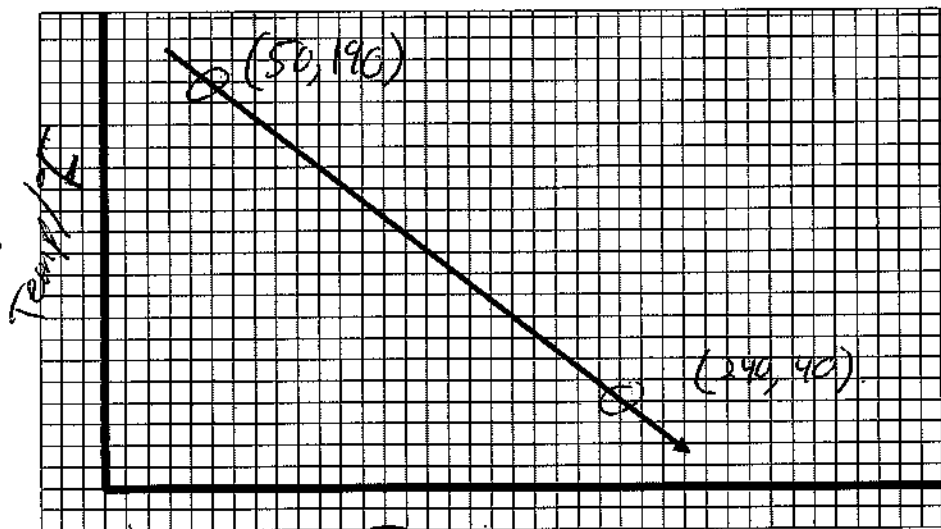
7) Lab results: An experiment was done to measure the time it takes for an engine to cool down. They measured the temperature of the radiator fluid ($^{\circ}F$) and time (sec). The best fit line is given below. The x- and y-axis start at zero and count by tens.

2) a) Label the axes.

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

2) c) After 40secs, what temperature is the engine?

2) d) How long until the engine is $90^{\circ}F$?



$$m = \frac{190-90}{50-240} = \frac{100}{-190}$$

$$\approx -.79$$

$$y = -.79(x-50) + 190$$

$$= -.79x + 39.5 + 190$$

$$b) \boxed{y = -.79x + 229.5}$$

$$c) \quad y = -.79(40) + 229.5 = \boxed{197.9^{\circ}F}$$

$$d) \quad 90 = -.79x + 229.5$$

$$\boxed{x = 176.6 \text{ sec.}}$$

Name:

3/31/2017

Algebra I - Test 6

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

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

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

X (no)

b) $(0, -2); \begin{cases} y = x - 2 \\ 2x + y = 1 \end{cases}$

$-2 \leq -2$
 $0 + (-2) = 1$

X (no)

c) $(2, 5); \begin{cases} y \leq 6x + 11 \\ 3x - 4y > 0 \end{cases}$

$5 \leq 12 + 11$
 $6 - 4(5) > 0$

X (no)

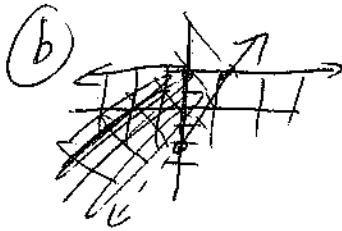
2) Solve the following by **GRAPHING** them. Use graph paper!!

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

$(3, 1)$

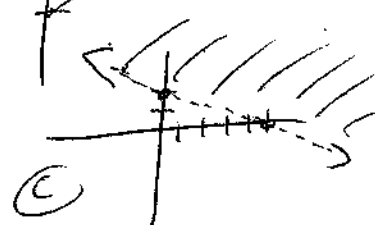


b) $\begin{cases} y > 4x - 2 \\ y \leq 2 \end{cases}$



c) $2x + 5y > 10$

$y > -\frac{2}{5}x + 2$

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

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

$-x + 2x - 11 = -4$
 $x - 11 = -4$
 $+11 \quad +11$
 $x = 7$

$(7, 3)$

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

$\begin{matrix} 4x + y = 0 \\ -x + y = -3 \end{matrix}$

$y = -x - 3$

$4x - x - 3 = 0$

$3x = 3$

$x = 1$

$y = -4$

$(1, -4)$

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

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

$5x = 10$

$x = 2$

$y = -1$

$(2, -1)$

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

$x = 1$

$2x + y = 3$

$-2x + 4y = 2$

$5y = 5$

$y = 1$

$(1, 1)$

5) The following four systems are some of the special cases. State the number of solutions for each system.

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

$-x + x + 3 = 3 \quad \checkmark$ all Reals, ∞ soln

b) $\begin{cases} y - 7 = 5x \\ y = 5x - 7 \end{cases}$

$5x - 7 - 7 = 5x$
 $-5x$ $-14 = 0 \quad \times$ no soln

c) $\begin{cases} y + 4x = 9 \\ y = 4x + 5 \end{cases}$

$4x + 5 + 4x = 9$
 $8x = 4$
 $x = \frac{1}{2}$ 1 soln

d) $\begin{cases} x - y = 4 \\ -x + y = 5 \end{cases}$
 $0 = 9$

no soln

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

A. Derek bought 5 pens and 2 pencils for \$5. George bought 2 pens and 5 pencils for \$4. How much does it cost to buy a pen and a pencil?

$\begin{cases} 5x + 2y = 5 \\ 2x + 5y = 4 \end{cases}$

B. Treazur wants to top Alyssa'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?

$\begin{cases} x + y = 20 \\ 3x + 2y = 46 \end{cases}$

C. Bailey and Chris 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 Bailey uses a jetpack to go 4 times as long as Chris, how long does each go?

$\begin{cases} x + y = 12 \\ x = 4y \end{cases}$

D. Bailey and Chris do not make it away safely this time. In fact, all of Treazur's friends (including Treazur) 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?

$\begin{cases} x + y = 21 \\ x = 6y \end{cases}$

a) $10x + 4y = 16$

$-10x - 25y = -20$

$-21y = -10$

$y = \frac{10}{21}$
 $x = \frac{1}{21}$

b) $-3x - 3y = -60$

$3x + 2y = 46$

$-y = -14$

$y = 14$
 $x = 6$

c) $4y + y = 12$

$5y = 12$

$y = 2.4 \text{ sec}$

$x = 9.6$

d) $6y + y = 21$

$7y = 21$

$y = 3$

$x = 18$

Name: key

4/28/2017

Algebra I – Test 7

1)

a) When dealing with radicals, we do not want a radical in the denominator and a denominator in the radical.b) When dividing with the same base, you keep the base and subtract the exponents.c) In the radical $\sqrt[4]{\quad}$, 4 is the index. We say it is a 4 for 1 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) $\left(\frac{7^4}{7^9}\right)^{11}$ $\left(\frac{1}{7^5}\right)^{11} = \frac{1}{7^{55}}$

c) $2^{-3}x^9y^4 \cdot 3^2x^5y^{-10}$
 $\frac{1}{8}$ 9 $\frac{9x^{14}}{8y^6}$

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

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

a) $\frac{6 \cdot 10^{-11}}{30 \cdot 10^5}$ 2×10^{-16}
 2×10^{-15}

b) $2.5 \cdot 10^5 \cdot 7.4 \cdot 10^{-9}$
 18.5×10^{-4}
 1.85×10^{-3}

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

a) $7 + x^2$ quadratic
binomial

c) $x + 6^4$ linear binomial

b) $x^3 + 3x - 4x^2$
cubic
trinomial

d) 2^4 constant
monomial

5) Rationalize/simplify the following radicals.

a) $\sqrt{27}$ $\sqrt{9 \cdot 3}$	$3\sqrt{3}$	b) $\frac{8}{\sqrt[3]{x} \cdot x \cdot x}$ $\frac{8\sqrt[3]{x^2}}{x}$
c) $\sqrt[3]{16x^4y^6}$ $\sqrt[3]{2^4 \cdot 2^3 x^4 y^6}$ $\sqrt[3]{2^3 \cdot 2 x^4 y^6}$ $2\sqrt[3]{2x^4y^6}$	$2xy^2\sqrt[3]{2x}$	d) $\sqrt[2]{\frac{1 \cdot 3}{3 \cdot 3}}$ $\frac{\sqrt{3}}{3}$

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

a) $9x^7 + 3x^4 - 8x^9$ $-8x^9 + 9x^7 + 3x^4$ LC: -8

b) $6x^2 - x^3 + 8^5 - 3x^4 + 2x^{10}$ $2x^{10} - 3x^4 - x^3 + 6x^2 + 8^5$ LC: 2

7) Multiply the following expressions.

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

b) $x(3x^2 - 4x)$ $3x^3 - 4x^2$

c) $(x+1)(x-3)$

$x^2 - 3x + x - 3 = \boxed{x^2 - 2x - 3}$

d) $(x-1)(x^2 + 3x - 4)$

	x^2	$3x$	-4
x	x^3	$3x^2$	$-4x$
-1	$-x^2$	$-3x$	$+4$

$\boxed{x^3 + 2x^2 - 7x + 4}$

8) Write the following numbers in scientific notation.

a) 46.2

4.62×10^1

b) 1700

1.7×10^3

c) 0.00064

6.4×10^{-4}

d) 9510000

9.51×10^6

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

$\begin{array}{l} \text{firsts} \\ \text{outers} \\ \text{inners} \\ \text{lasts} \end{array}$

Name: Key
 1/13/2017
 Algebra I Quiz 13-14

1)

- a) How do you say: $f(x)$ in function notation? f of x
 b) In the function notation of $f(x)$, what is the independent and what is the dependent variable?
 c) If $f(x) = x + 3$, what is $f(2)$ and $f(-1)$? x f .
 d) For any relation, there is a domain and range. The domain is all the x -values and the range is all the y -values.

→ $f(2) = 5$ $f(-1) = 2$.
 2) Determine the function that represents the following tables.

Table 10

x	f(x)
4	9
5	10
6	11
7	12
8	13

$$f(x) = x + 5$$

Table 15

x	f(x)
3	2
6	3
9	4
12	5
15	6

$$f(x) = \frac{1}{3}x + 1$$

3) Give the domain and range of the following relation:

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

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

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

4) Identify the independent and dependent variables in the following scenarios.

- a) As the wind increases, the fires spread faster.
 b) Once the rains come, the plants grow.
 c) Students' grades go up as they do their homework.
 d) The more miles I drive, the more I have to change my oil.

5) What does IRS stand for? internal revenue service.

6) Match the following forms with their definitions

C W-2
A W-4
D 1040
B ND-1

- A. form used by employees to inform employers of exemptions
 B. form used to report income to the state
 C. form used by employers to report income paid to an employee
 D. form used to report income to the IRS

Name: key
 1/20/2017
 Algebra I Quiz 1415

- 1)
 a) How do you say: $f(x)$ in function notation? "f of x"
 b) In the function notation of $f(x)$, what is the independent and what is the dependent variable?
 c) If $f(x) = x - 5$, what is $f(0)$ and $f(-2)$? $f(0) = -5$, $f(-2) = -7$
 d) For any relation, there is a domain and range. The domain is all the x-values and the range is all the y-values.

2) Use the First Differences to classify each table as linear or nonlinear.

a)

X	0	1	2	3
Y	5	6	8	12

First differences for table a: $\Delta x = +1, +1, +1$; $\Delta y = +1, +2, +4$. *nonlinear.*

b)

X	3	4	5	6
Y	-4	-1	2	5

First differences for table b: $\Delta x = +1, +1, +1$; $\Delta y = +3, +3, +3$. *linear.*

3) I keep preaching about two main uses of algebra in the real world. What are those two uses?

- a) *taking things a part*
 b) *Modeling.*

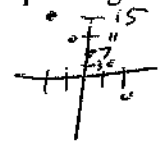
4) What type of correlation would you expect for the following situations? (Positive, negative, or no correlation)

- a) Number of shark attacks vs the number of ice cream sales *positive, no correlation.*
 b) The temperature inside a building vs. the temperature outside a building *positive.*
 c) The grade in a class vs. homework assignments not turned in *negative*

5) Graph the following function. Show your work by making a table of five points, and then plotting them on the back.

$$y = -4x + 7$$

x	y
-2	15
-1	11
0	7
1	3
2	-1



6) Match the following forms with their definitions

- B $y = mx + b$
C $y = m(x - x_1) + y_1$
A $Ax + Bx = C$

- A. Standard form
 B. Slope-intercept form
 C. Point-slope form

Name: Key.

1/27/2017

Algebra I Quiz 16

1) There are two important points with a line. Their general forms are: $(0, y)$ and $(x, 0)$. What is the name of each of these points? Be specific.

\rightarrow y-intercept

\rightarrow x-intercept.

2) Find the slope of the line given the following equation.

$$4x - 5y = 20$$

$$\begin{array}{c|c} x & y \\ \hline 5 & 0 \end{array} \quad \begin{array}{c} -4 \\ +4 \end{array} \quad \boxed{\frac{4}{5}}$$

3) I keep preaching about two main uses of algebra in the real world. What are those two uses?

a) *Taking things apart & putting together.*

b) *Modeling.*

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

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

5) Given the following pairs of points, calculate the slope. Leave your answer in fraction form.

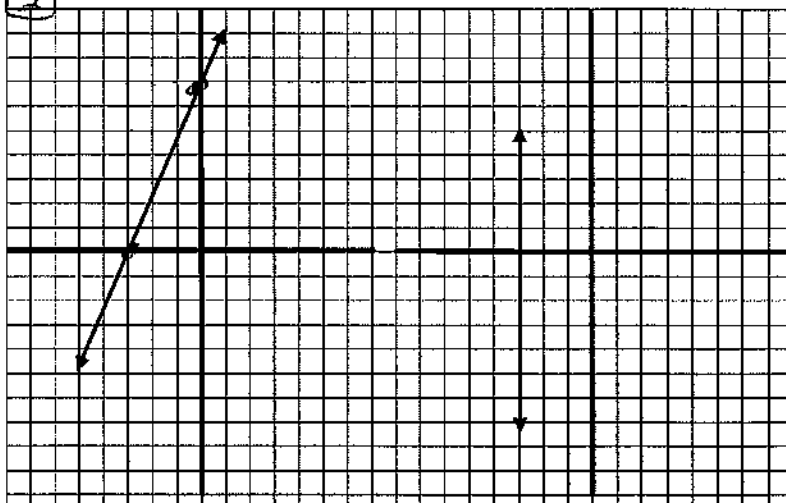
a) $(2, 3)$ & $(4, -5)$ $\frac{-5-3}{4-2} = \frac{-8}{2} = \boxed{-4}$

b) $(-1, 0)$ & $(3, 10)$ $\frac{10-0}{3-(-1)} = \frac{10}{4} = \boxed{\frac{5}{2}}$

6) Given the following lines, figure out what the slope of the lines are.

a) $7/3$

b) *undefined.*



Name: Key

2/9/2017

Algebra I Quiz 17

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

a) $y = x - 5$

Slope = 1

y-inter: -5

b) $y = \frac{1}{2}x + 6.3$

Slope = $\frac{1}{2}$

y-inter: 6.3

c) $y = .25x + 2$

Slope = .25

y-inter = 2.

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

$y = 2x + b \rightarrow 10 = 2(0) + b \rightarrow b = 10$

$y = 2x + 10$

3) Write the following in SLOPE-Intercept form. Identify what the slope and y-intercept are.

a) $12x + y = 4$

$-12x$ $-12x$

$m = -12$

$y = -12x + 4$

y-inter: 4

b) $-24x + y = 12$

$+24x$

$+24x$

$m = 24$

$y = 24x + 12$

y-inter: 12.

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

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

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

a) $(0, -6)$ & $(-5, -5)$

$\frac{-5 - (-6)}{-5 - 0} = \boxed{\frac{1}{-5}}$

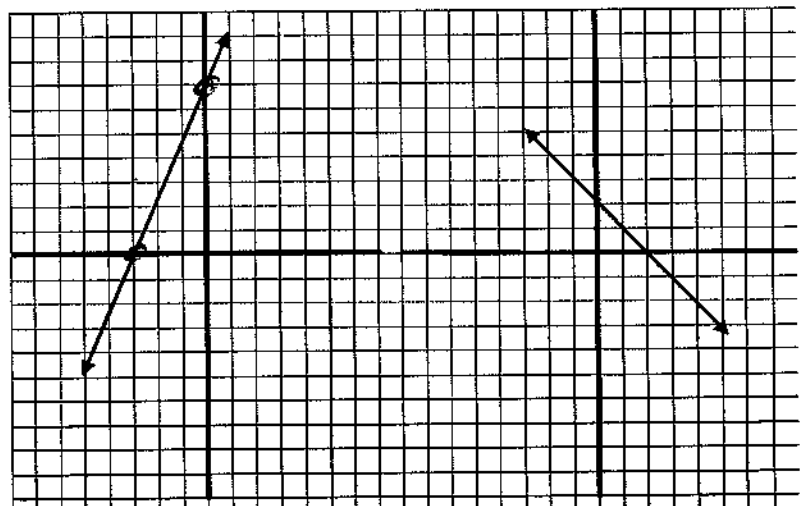
b) $(-8, 6)$ & $(-5, -7)$

$\frac{-7 - 6}{-5 - (-8)} = \boxed{\frac{-13}{3}}$

6) Given the following lines, figure out what the slope of the lines are.

a) $\frac{7}{3}$

b) $\frac{-2}{2} = -1$



Name: key

2/17/2017

Algebra I Quiz 18

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

a) $y = 7x + 95$ $m=7$
 $b=95$

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

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

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

a) slope = -4, y-inter: (0, 8)

$y = -4x + 8$

b) slope = -2 (2, 1)

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

3) Write the following in SLOPE-Intercept form. Identify what the slope and y-intercept are.

a) $12x + 2y = 4$
 $-12x$ $-12x$ $\frac{2y}{2} = \frac{-12x+4}{2}$
 $y = -6x + 2$ $m=-6, b=2$

b) $-9x - 3y = 12$
 $+9x$ $+9x$ $-3y = 9x + 12$
 $\frac{-3y}{-3} = \frac{9x+12}{-3}$ $y = -3x - 4$
 $m=-3$
 $b=-4$

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

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

5) Find the equation of the line that passes through the following points.

a) (0, -6) & (-5, -5) $m = \frac{-5 - (-6)}{-5 - 0} = \frac{1}{-5}$

$y = -\frac{1}{5}(x+5) - 5 = -\frac{1}{5}x - 6$

b) (-8, 6) & (-5, -7) $m = \frac{-7 - 6}{-5 - (-8)} = \frac{-13}{3}$

$y = -\frac{13}{3}(x+8) + 6$

$= -\frac{13}{3}x - \frac{104}{3} + 6 = -\frac{13}{3}x - \frac{86}{3}$

6) Graph the lines from #3.



7) Match the following forms with their definitions

B $y = mx + b$
C $y = m(x - x_1) + y_1$
A $Ax + Bx = C$

- A. Standard form
 B. Slope-intercept form
 C. Point-slope form

Name: Key

3/10/2017

Algebra I Quiz 20

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

$$a) (0, -2); \begin{cases} y = x - 2 \\ 2x + y = 1 \end{cases} \quad \begin{array}{l} -2 = 0 - 2 \checkmark \\ 0 + (-2) = 1 \quad X \end{array}$$

Not a soln.

$$b) (3, -1); \begin{cases} x - 2y = 5 \\ 2x - y = 7 \end{cases} \quad \begin{array}{l} 3 - 2(-1) = 5 \checkmark \\ 6 - (-1) = 7 \checkmark \end{array}$$

Yes, it is.

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

$$a) \begin{cases} 4x - 3y = -1 \\ 3x - y = -2 \end{cases} \quad \begin{array}{l} 4x - 3y = -1 \\ (3x - y = -2) \cdot (-3) \\ \hline 4x - 3y = -1 \\ -9x + 3y = 6 \\ \hline -5x = 5 \end{array} \quad \begin{array}{l} x = -1 \\ y = -1 \end{array}$$

$$\boxed{(-1, -1)}$$

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

$$a) \begin{cases} y = -3x + 4 \\ x = 2y + 6 \end{cases} \quad \begin{array}{l} x = 2(-3x + 4) + 6 \\ x = -6x + 8 + 6 \end{array}$$

$$\begin{array}{l} x = -6x + 14 \\ +6x \quad +6x \\ \hline 7x = 14 \end{array}$$

$$\begin{array}{l} x = 2 \\ y = -2 \end{array}$$

$$\boxed{(2, -2)}$$

4) George bought 4 DVD's and 2 candy bars for \$26. Amanda bought 2 DVD's and 4 candy bars for \$34. How much does it cost to buy a DVD and a candy bar?

$$\begin{array}{l} -2(4x + 2y = 26) \\ (2x + 4y = 34) \\ \hline -8x - 4y = -52 \\ 2x + 4y = 34 \\ \hline -6x = -18 \end{array} \quad \begin{array}{l} x = 3 \\ y = 7 \end{array}$$

\$3 per DVD
\$7 per candy bar

5) Solve the following systems by **GRAPHING** them. Use the graph!!

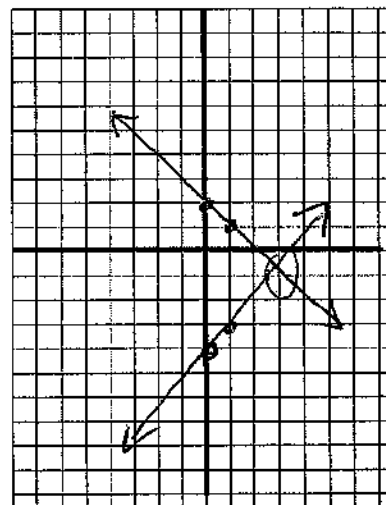
$$a) \begin{cases} y = -x + 2 \\ y = x - 4 \end{cases} \quad (3, -1) \checkmark$$

Bonus: What was the name of the team that won the ranch rodeo last night?

Hot Shots

Bonus: What was the name of Jamie, Chris, and Derek's team?

3 Smiths and a Birch.



Name: key

3/16/2017

Algebra I Quiz 21

- 1) The sum of the digits of a two-digit number is 7. The product of the digits is 6. What is the number?

$$\begin{aligned} x &= 1^{\text{st}} \\ y &= 2^{\text{nd}} \end{aligned}$$

$$\begin{cases} x+y=7 \\ x \cdot y=6 \end{cases}$$

$$\begin{aligned} x &= 1 \\ y &= 6 \end{aligned}$$

$$\begin{aligned} 16 & \text{ or } \\ 61 & \end{aligned}$$

- 2) Solving the following systems by
- ELIMINATION**
- .

$$\begin{cases} 4x - 3y = -1 \\ 3x - y = -2 \end{cases} \quad -3$$

$$\begin{cases} 4x - 3y = -1 \\ -9x + 3y = 6 \end{cases}$$

$$\begin{aligned} -5x &= 5 & -3 - y &= -2 \\ x &= -1 & +3 & +3 \end{aligned}$$

$$\boxed{(-1, -1)} \quad y = -1$$

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

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

$$2(-3y + 15) - 3y = -6$$

$$\begin{aligned} -6y + 30 - 3y &= -6 \\ -9y + 30 &= -6 \\ -9y &= -36 \end{aligned}$$

$$\begin{aligned} y &= 4 & x &= 3 \\ & & \boxed{(3, 4)} & \end{aligned}$$

- 4) Alyssa bought 5 DVD's and 7 candy bars for \$99. Bailey bought 7 DVD's and 5 candy bars for \$129. How much does it cost to buy a DVD and a candy bar?

$$\begin{aligned} x &= \text{DVD} \\ y &= \text{candy} \end{aligned}$$

$$\begin{cases} 5x + 7y = 99 \\ 7x + 5y = 129 \end{cases} \quad -7$$

$$-35x - 49y = -693$$

$$\begin{aligned} 35x + 25y &= 645 \\ -24y &= 48 \end{aligned}$$

$$5x + 14 = 99$$

$$\begin{aligned} y &= 2 & x &= 17 \end{aligned}$$

- 5) Solve the following systems of equations.

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

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

$$x + -x + 5 = 5$$

$$5 = 5$$



All Reals.

$$\begin{aligned} 2x - 1 - 1 &= 2x \\ -2x & \quad 2x \\ \hline -2 &= 0 \end{aligned}$$

X

no soln.

Name: key

3/24/2017

Algebra I Quiz 22

- 1) a) When graphing linear inequalities, you always need to have the inequality in slope-inter form.
 b) When multiplying/dividing by a (-), you have to Switch the inequality sign.
 c) You have dashed line when there is an ("Or equal to") or (NOT an "Or equal to") (multiple choice).
 d) A $y = 2$ is a vertical/horizontal line. (multiple choice)

2) Check if the given point is the solution of the system. Show your work!

a) $(0, -2); \begin{cases} y \geq x - 2 \\ x + y \leq 1 \end{cases}$

$$\begin{aligned} -2 &\geq 0 - 2 \\ -2 &\geq -2 \quad \checkmark \end{aligned}$$

Soln.

b) $(3, -1); \begin{cases} x - 2y \leq 5 \\ x + y \leq 4 \end{cases}$

$$\begin{aligned} 3 - 2(-1) &\leq 5 \\ 3 + 2 &\leq 5 \\ 5 &\leq 5 \end{aligned}$$

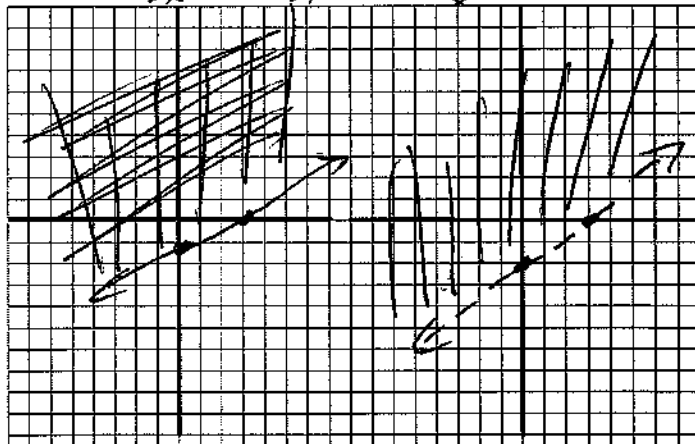
Soln

3) Graph the following linear inequalities.

a) $y \geq \frac{1}{3}x - 1$

b) $2x - 3y < 6$

$$\begin{aligned} +3y &< -2x + 6 \\ \frac{+3y}{-3} &< \frac{-2x + 6}{-3} \quad y > \frac{2}{3}x - 2 \end{aligned}$$



4) One of Ms. Leggate's Tests is worth a hundred points and has 46 questions. The test consists of True/False questions worth one point each and multiple choice questions worth three points each. How many multiple-choice questions are on the test?

$x = T/F$

$y = MC$

$$\begin{cases} x + y = 46 \\ x + 3y = 100 \end{cases}$$

$$\begin{aligned} -x - y &= -46 \\ x + 3y &= 100 \end{aligned}$$

19 T/F

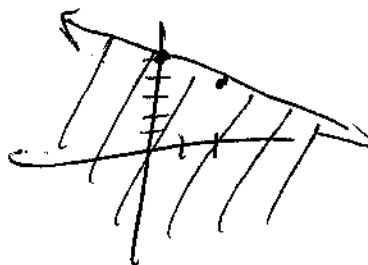
$$\begin{aligned} 2y &= 54 \\ y &= 27 \text{ MC} \end{aligned}$$

5) Treazur buys dog food for \$10 a bag and dog diapers for \$20 a bag. She only has \$100 to spend.

A) Write an inequality that represents this story.

B) Graph the inequality.

$$\begin{aligned} 10x + 20y &\leq 100 \\ 20y &\leq 100 - 10x \\ \frac{20y}{20} &\leq \frac{100 - 10x}{20} \\ y &\leq -\frac{1}{2}x + 5 \end{aligned}$$



Name: Key.

4/7/2017

Algebra I Quiz 24

1) Fill in the blanks:

a) Quotient Rule: When dividing with the same base, you keep the base and subtract the exponents.

b) Product Rule: When multiplying with the same base, you keep the base and add the exponents.

c) "Power to a power, you multiply the exponents"

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

a) $2x^9 \cdot 6x^{-14}$

$$12x^{-5} = \frac{12}{x^5}$$

b) $4x^9y^3 \cdot 3x^2$

$$12x^{11}y^3$$

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

a) $\frac{40x^{-3}y^{-20}}{20x^{-4}y^9}$

$$\frac{2x}{1y^9}$$

$$-3 - (-4) = 1$$

$$-20 - 9 = -29$$

b) $\frac{15x^9y^5}{20x^{-4}y^9}$

$$\frac{3x^{13}}{4y^4}$$

$$9 - (-4) = 13$$

$$5 - 9 = -4$$

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

a) $(x^3y^7)^6$

$$x^{18}y^{42}$$

b) $(x^6y^{-8})^{-5}$

$$x^{-30}y^{40} = \frac{y^{40}}{x^{30}}$$

5) Write the following in standard form.

a) $(-5)^3$

$$-125$$

b) $(-8)^4$

$$4096$$

Name: Key

4/13/2017

Algebra I Quiz 25

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

2) Simplify the following radicals.

a) $\sqrt{48}$

$$\begin{array}{c} 4 \quad 12 \\ \swarrow \quad \searrow \\ 2 \quad 2 \quad 2 \quad 2 \quad 2 \quad 2 \end{array}$$

$\sqrt[4]{3}$

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

$$\begin{array}{c} 3 \quad 6 \\ \swarrow \quad \searrow \\ 2 \quad 2 \quad 2 \quad 2 \quad 2 \quad 2 \end{array}$$

$2x^2y^2\sqrt[3]{3x}$

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

a) $(9.8 \times 10^8)(3.69 \times 10^{14})$

36.16×10^{22}

3.616×10^{23}

b) $\frac{3.14 \times 10^{-4}}{4.13 \times 10^5}$

7.603×10^{-9}

7.603×10^{-9}

4) Write the following in scientific notation.

a) 123400

1.234×10^5

b) 0.0009876

9.876×10^{-4}

5) Write the following in standard form:

a) 3.54×10^5

354000

b) 5.78×10^{-3}

0.00578

6) Simplify the following expressions. Leave your answers in exponent form.

a) $(4x^3 \cdot x^8)^4$

$4x^{11}$

$4^4 x^{44}$

b) $\left(\frac{8^3}{8^9}\right)^6$

$\left(\frac{1}{8^6}\right)^6 = \frac{1}{8^{36}}$

Name:

key

4/21/2017

Algebra I Quiz 26

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

2) Simplify the following radicals.

a) $\sqrt{56}$

$\boxed{2\sqrt{14}}$

$$\begin{array}{c} 8 \quad 7 \\ \swarrow \quad \searrow \\ (2 \cdot 2) \cdot 7 \end{array}$$

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

$\boxed{3x^3y^8\sqrt[3]{3x}}$

$$\begin{array}{c} 9 \quad 4 \\ \swarrow \quad \searrow \\ (3 \cdot 3) \cdot 3 \cdot 3 \end{array}$$

3) Rationalize/simplify the following radicals.

a) $\sqrt{\frac{1 \cdot x}{x \cdot x}}$

$\boxed{\frac{1}{x}\sqrt{x}}$

$$\begin{array}{c} 2 \quad 1 \quad 3 \\ \swarrow \quad \searrow \quad \searrow \\ \sqrt[3]{9} \cdot 3 \end{array}$$

$\boxed{\frac{2\sqrt[3]{3}}{3}}$

4) Rationalize/simplify the following radicals.

a) $\sqrt{\frac{81}{16}}$

$\boxed{\frac{9}{4}}$

$$\begin{array}{c} 3 \quad 3 \quad 3 \quad 3 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ (2 \cdot 2) \cdot (2 \cdot 2) \end{array}$$

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

$\boxed{\frac{1}{2}}$

$$\begin{array}{c} 2 \quad 2 \quad 2 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \cdot 2 \cdot 2 \end{array}$$

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

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

quadratic trinomial

b) 8^2

constant monomial

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

a) $7x^3 + x - 5x^6$

$-5x^6 + 7x^3 + x$

$\boxed{LC: -5}$

b) $5x^2 - x^5 + 8 - 3x^3 + 2x$

$-x^5 - 3x^3 + 5x^2 + 2x + 8$

$\boxed{LC: -1}$