Name: Key
PreAlgebra – Test 1
9/21/2016

(1) 1) The letter in an equation is always the variable.

2) For the following expression: $3 * 3$

(3) a) Write it using exponents 3^2

b) How do you say it with an exponent? 3 squared

c) What is the second way of saying it? 3 to the 2nd power.

3) Write the following in words.

(5) a) $5x - 3$

5 times x minus 3

b) $2/x$

2 divided by x

c) $2 * (x - 7)$

2 times the difference of x minus 7

d) $3 - 9 \div x$

3 minus 9 divided by x.

4) What is the order of operations? 7.

(3) Parentheses, exponents, Multiply, divide, add, subtract.

5) Evaluate the expression: $[3^2 - 2^3] * 5 - 4 * 8$

(3) $[9-8] \cdot 5 - 4 \cdot 8$

$1 \cdot 5 - 32 = -27$

6) Evaluate the following absolute values:

(4) a) $|-4|$ 4

b) $|-1| + 9$ $1 + 9 = 10$

c) $|2|$ 2

d) $|-9| - 6$ $9 - 6 = 3$

7) Find the difference of the following expressions:

(4) a) $7 - 12$ -5

b) $-3 + (+9)$ 6

c) $16 + (+14)$ 30

d) $-5 - 3$ -8

8) Find the sum of the following expressions:

(4) a) $-27 + (-16)$ -43

b) $-106 + 10$ -96

c) $-9 + 12 + (-4)$ -1

d) $54 + (-28) + 23$

49.

9) Evaluate the following expressions for $a = 10$ and $b = -5$.

(8)

a) $a + (-23)$ -13

b) $-b - a$ $-(-5) - 10 = -5$

c) $b + 30$ 25

d) $a - b$ $10 - (-5) = 15$

10) Find the change in temperature, elevation, and speed.

a) From $-20°C$ *to* $50°C$

(8) $70°C$

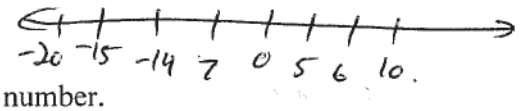
b) From $120ft$ to $1200ft$ $1080\,ft.$

c) From $10°F$ *to* $-11°F$ $-21°F$

d) From 20mph to 65mph $45\,mph.$

11) Put the following numbers on a **number line**.

(3) $-14, 10, -7, 5, 6, -20, 0, -15$



12) State the opposite of the number.

a) -94 94

(4)

b) 12 -12

c) 14 -14

d) -21 $21.$

13) Evaluate the expression when $a = -5$ and $b = 7$

(8)

a) $\frac{a+11}{6}$ $\frac{6}{6} = 1$

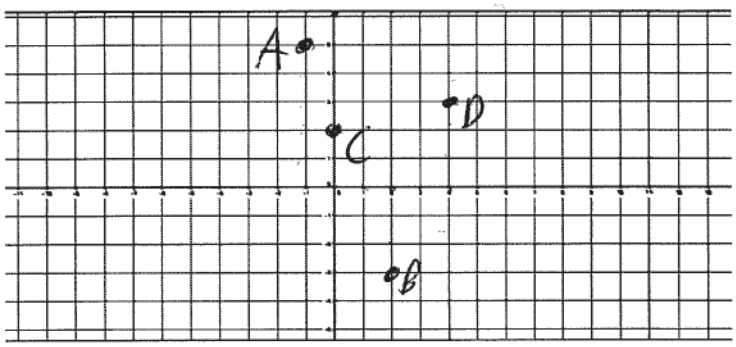
b) $a[(b-a)^2 + 5]$ $(144 + 5)$ $-5(149) = -745$

c) $\frac{20a}{13+b}$ -5

d) $10a - ab$ $-50 + 35 = -15$

14) Use the following graph to plot and label the points:

(4) $A(-1,5)\ B(2,-3)\ C(0,2)\ D(4,3)$



15) What quadrant is each letter in:

(4)

a) II

b) IV

c) B/w I & II

d) I

Name: Key
PreAlgebra – Test 2
10/18/2016

1) Simplify the following expressions by combining like terms. (8)

a) $5x + 10y + 7y - 12x$ $-7x + 17y$

b) $4x + 6x - 10x^2$ $10x - 10x^2$

c) $-2x + 11 + 10x$ $8x + 11$

d) $-20x - 10x$ $-30x$

2) Match the following equations with the properties they represent. (3)

D $a * b = b * a$

E $1 * x = x$

F $(ab)x = a(bx)$

C $a + b = b + a$

A $x + 0 = x$

B $a(b + c) = ab + ac$

A) Identity Property of Addition

B) Distributive Property

C) Commutative Property of Addition

D) Commutative Property of Multiplication

E) Identity Property of Multiplication

F) Associative Property of Multiplication

3) Write the following in words. (8)

a) $x + 5 = 6$ x plus 5 is 6

b) $8x = -9$ 8 times x is -9

c) $\frac{x}{2} = 20$ x divided by 2 is 20

d) $7 - x = 4$ 7 minus x is 4.

4) Translate the following into EQUATIONS: (4)

a) The quotient of 12 and y is 15 $12 \div y = 15$

b) The sum of 5 and x is 20 $5 + x = 20$

5) Given: $15x - 7 + 20x$ fill in the following table. (3)

Terms:	Coefficients:	Constant Terms:	Like Terms:	Simplify the expression:
15x, -7, 20x	15, 20	-7	15x, 20x	35x - 7

6) Solve the following equations. Show ALL your work! (6)

a) $x - 5 = 2$ (+5 | +5) $x = 7$

b) $x + 8 - 9 = 20$ $x - 1 = 20$ (+1 | +1) $x = 21$

c) $\frac{4x}{4} = \frac{24}{4}$ $x = 6$

d) $7x - 5x = -18$ $\frac{2x}{2} = \frac{-18}{2}$ $x = -9$

7) You have a rectangle with a length of 15 ft and width of x ft.

(3) a) Draw a picture to represent this.

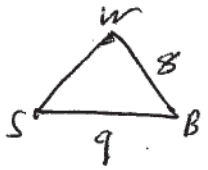
b) If you need the area to be 45 ft^2, what does x have to be

$15x = 45$

$x = 3$ ft

8) Tyler is building a triangular pen for his three dogs so he can tie each one in a corner. He wants Waldo (currently missing) to be 8 yds away from Bambi. He needs Bambi to be 9 yds away from Skunky (he stinks). If Tyler only has 24 yds of fence, how far away are Waldo and Skunky? (*Hint: Draw a picture)

(2)



24
−17
7 yds.

9) Graph the following inequalities.

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

10) Solve the following equations.

(6) a) $\frac{x}{12} - 7 = 17$

$+7 \quad +7$

$12 \cdot \frac{x}{12} = 24 \cdot 12$

$x = 288$

b) $12x - 25 = 29$

$+25 \quad +25$

$12x = 54$

$x = 4.5$

11) Solve the following equations. Show all your work!

(6) a) $20x - 67 = 65 - 24x$

$+24x \quad +67 \quad +67 + 24x$

$\frac{44x}{44} = \frac{132}{44}$

$x = 3$

b) $8x = 2(4x + 2)$

$8x = 8x + 4$

$-8x \quad -8x$

$0 = 4$ no soln

12) a) What are the two things required to have like terms? The same letter and

(2) exponent.

b) The letter in an equation is always the variable.

13) What are the missing steps to solving all algebra problems?

(2) a) Get rid of parentheses

b) Combine like terms

c) move variable to one side.

d) PEMDAS

Name: Key

PreAlgebra – Test 3 (through 4.4)

11/22/2016

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.

(12)

a) $-3x - 4 \leq 19$

$+4 \quad +4$

$-3x \leq 23$

$x \geq -\frac{23}{3}$

$-23/3$

b) $\frac{4}{3}x < -12$ $\cdot \frac{3}{4}$

$x < -9$

-9

c) $\frac{x}{5} - 8 > 25$

$+8 \quad +8$

$5 \cdot \frac{x}{5} > 33 \cdot 5$

$x > 165$

165

d) $5x - 11 \geq 0$

$+11 \quad +11$

$\frac{5x}{5} \geq \frac{11}{5}$

$x \geq \frac{11}{5}$

$11/5$

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

(12)

a) $-3(4x + 21) \geq -36$

$-12x - 63 \geq -36$

$+63 \quad +63$

$-12x \geq 27$

$\frac{-12x}{-12} \leq \frac{27}{-12}$

$x \leq -\frac{9}{4}$

$-9/4$

b) $5(x + 2) + 1 < 7 - 5x$

$5x + 10 + 1 < 7 - 5x$

$+5x \quad +5x$

$10x + 11 < 7$

$-11 \quad -11$

$10x < -4$

$x < -\frac{2}{5}$

$-2/5$

c) $-1 - 5x > -3x - 2x$

$+5x \quad +5x$

$-1 > 0$

No soln.

d) $-(6x + 6) - 5 \leq 1 - 6x$

$-6x - 6 - 5 \leq 1 - 6x$

$+6x \quad +6x$

$-11 \leq 1$

All Reals

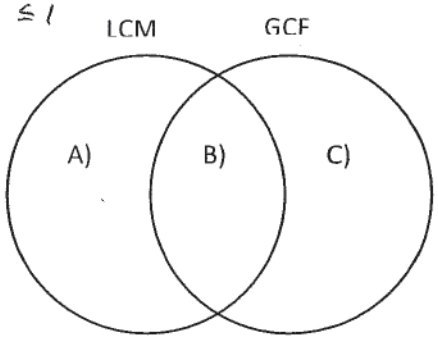
3) Fill in the blanks for the LCM and GCF chart:

(3)

A) Keep All the bases and the highest exponents.

B) factor all the terms and numbers.

C) Keep only the common bases and the lowest. exponents.



4) Find the GCF of the following numbers.

a) 32, 28 (8) (4)

$32 = 2^5$

$28 = 2^2 \cdot 7$

b) 45, 50 (5)

$45 = 3^2 \cdot 5$

$50 = 2 \cdot 5^2$

c) 14, 21, 28 (7)

$14 = 2 \cdot 7$

$21 = 3 \cdot 7$

$28 = 2^2 \cdot 7$

d) 4, 13, 24 (1)

$4 = 2^2$

$13 = 13$

$24 = 2^3 \cdot 3$

5) Find the LCM of the following numbers

a) 32, 28 (8)

$2^5 \cdot 7 = (224)$

b) 45, 50

$2 \cdot 3^2 \cdot 5^2 = (450)$

c) 14, 21, 28

$2^2 \cdot 3 \cdot 7 = (84)$

d) 4, 13, 24

$2^3 \cdot 3 \cdot 13 = (312)$

6) Find the GCF of the following monomials.

a) $14x^3, 42x^4$ $14 = 2 \cdot 7$, $42 = 2 \cdot 3 \cdot 7$ (8) $14x^3$

b) $8x^2, 11$ $8 = 2^3$, $11 = 11$ (1)

c) $12x, 6x^2, 9x^3$ $12 = 2^2 \cdot 3$, $6 = 2 \cdot 3$, $9 = 3^2$ (3x)

d) $64x^4, 24x^2$ $64 = 2^6$, $24 = 2^3 \cdot 3$ $8x^2$

7) Find the LCM of the following monomials

a) $14x^3, 42x^4$ (8) $42x^4$

b) $8x^2, 11$ $88x^2$

c) $12x, 6x^2, 9x^3$ $36x^3$

d) $64x^4, 24x^2$ $192x^4$

8) Write the prime factorization of each of the following numbers.

a) 124 $= 2^2 \cdot 31$ (6)

2 | 62

2 | 31

b) 63 $= 3^2 \cdot 7$

c) 25 $= 5^2$

d) 46 $= 2 \cdot 23$

9) Simplify the following fractions.

a) $\frac{9}{15} = \frac{3}{5}$ (6)

b) $\frac{7 \cancel{28x^2}}{\cancel{8} \cancel{32x}} = \frac{7x}{8}$

c) $\frac{8}{12} = \frac{2}{3}$

d) $\frac{\cancel{24x^2}}{\cancel{26x}} = \frac{12x}{13}$

Name: Key
9/2/2016
PreAlgebra Quiz (7th Hour)

1) Evaluate the expression: $2 * 5 - 4 \div 2$

$10 - 2 = 8$

2) Evaluate the variable expression for $x = 2$.

$x^2 + 5 - 4x$

$4 + 5 - 8$

1

3) The letter in an equation is always the variable.

4) Simplify the following expression: $[3^2 - 2^2] * 5 - 4 * 8$

$(9 - 4)$

$25 - 32 = 7$

5) For the following expression: $2 * 2 * 2$

a) Write it using exponents 2^3

b) How do you say it with an exponent? 2 cubed

c) What is the second way of saying it? 2 to the third power

6) Give two different ways of saying the expression: $x + 3$

a) x plus 3

b) x added to 3.

Bonus: Who am I, who am I married to, what do I do, and where do I live?

Name: Key
9/8/2016
PreAlgebra Quiz (7th Hour)

1) Evaluate the expression: $(2 + 8) \div 5 + 7 * 9$

$10 \div 5 + 63$

$2 + 63 = \boxed{65}$

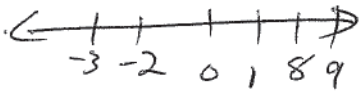
2) Evaluate the variable expression for $x = 3$.

$2x^2 + 5x - 4$

$18 + 15 - 4 = 29$

3) Evaluate: $|-2| + 3$ $\boxed{5}$

4) Put the following numbers in order on a number line: $1, -2, 0, 8, 9, -3$



5) Simplify the following expression: $[3^2 - 2^2] * 9 - 3 * 8$

$9 - 4$

$5 \cdot 9 - 24$

$45 - 24 = \boxed{21}$

6) For the following expression: $3 * 3$

a) Write it using exponents 3^2

b) How do you say it with an exponent? 3 squared

c) What is the second way of saying it?

3 to the second power.

Name: Key
9/16/2016
PreAlgebra Quiz (7th Hour)

1) Evaluate the following absolute values:

a) $|-6|$ 6

b) $|-3|+9$ 12

c) $|7|$ 7

d) $|-20|-12$ 8

2) Evaluate the variable expression for $x = 3$.

$4x^2 - 7x + 14$

9

36 − 21 + 14 29

3) Multiply the following expression: $(+1)(+1)(-1)(2)(3)(-5)(-1)$ = − 30

4) Find the change in temperature, elevation, and speed.

a) From $-20°C$ to $50°C$

70°C

b) From $120ft$ to $1200ft$

1080 ft.

5) Evaluate the expression when $a = -5$ and $b = 7$

a) $\frac{a+17}{6}$ 2

b) $10a - ab$

−50 − −35 = −15

c) $\frac{2a}{8-b}$ $\frac{-10}{1}$

d) $ab[(b-a)^2 + 5]$

12

144 + 5

−35 · 149 = −5215

Name: Key
9/30/2016
PreAlgebra Quiz (7th Hour)

1) What property is shown for each of the following equations?

a) $a + b = b + a$ Commutative prop of (+)

b) $(ab)x = a(bx)$ Associative prop. of (x)

c) $x + 0 = x$ Identity prop of (+).

2) Use the distributive property to simplify the following:

a) $6(x + 2)$

$6x + 12$.

b) $-2(x - 3)$

$-2x + 6$.

3) Given: $15x + 7 - 20x$ fill in the following table.

Terms:	Coefficients:	Constant Terms:	Like Terms:	Simplify the expression:
$15x, 7, -20x$	$15, -20$	7	$15x, -20x$	$-5x + 7$.

4) Simplify the following expressions by combining like terms.

a) $5x + 4y + 7y - 3x$ $2x + 11y$

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

c) $3(x^2 + x - 2) + x^2 - 2x$ $3x^2 + 3x - 2 = 4x^2 + x - 6$.

5) Do the following unit conversions

a) 4miles to feet

21,120 ft.

b) 360sec to minutes

6 min.

6) What quadrant is each letter in:

$A(1, -5)$ IV

$B(-2, -3)$ III

$C(2, 0)$ B/w I & IV

$D(-4, 3)$ II

Name: Key.
10/7/2016
PreAlgebra Quiz (5th hour)

1) Solve the following algebra problems. Make sure you show all your work!

a) $x - 4 = 9$
$+4 \quad +4$
$x = 13$

b) $x - 4 = -9$
$+4 \quad +4$
$x = -5$

c) $x + 4 = 9$
$-4 \quad -4$
$x = 5$

d) $x + 4 = -9$
$-4 \quad -4$
$x = -13$

2) Use the distributive property to simplify the following:

a) $6(x + 2)$ $6x + 12$

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

3) Given: $15x + 7 - 20x$ fill in the following table.

Terms:	Coefficients:	Constant Terms:	Like Terms:	Simplify the expression:
$15x, 7, -20x$	$15, -20$	7	$15x, -20x$	$-5x + 7.$

4) Simplify the following expressions by combining like terms.

a) $5x + 4y + 7y - 3x = 2x + 11y$

b) $4x^2 + 2x - 3x^2 = x^2 + 2x$

c) $3(x^2 + x - 2) + x^2 - 2x$
$3x^2 + 3x - 6 + x^2 - 2x = 4x^2 + x - 6.$

5) What are the two things required to have like terms? The same letter and exponent.

6)
Translate the following into equations:

a) The quotient of 12 and y is 15 $\frac{12}{y} = 15$

b) The sum of 5 and x is 20 $5 + x = 20$

Write the following in words.

c) $11 + x = 4$ 11 plus x is 4

d) $20x = 10$ 20 times x is 10.

Name: Key

10/14/2016

PreAlgebra Quiz (7th Hour)

1) What are the missing steps to solving all algebra problems?

a) Get rid of parentheses

b) Combine like terms.

c) Move variable to one side

d) PEMDAS

2) Solve the following equations.

a) $x - 4.5 = 10.8$

$+4.5 \quad +4.5$

$x = 15.3$

b) $.9x = .45$

$\frac{.9x}{.9} = \frac{.45}{.9}$

$x = .5$

3) Solve the following equations.

a) $12x + 7 = 13$

$-7 \quad -7$

$12x = 6$

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

b) $\frac{x}{12} + 25 = 29$

$-25 \quad -25$

$\frac{x}{12} = 4$

$x = 48$

4) Sect 3.3 HW questions. Solve the following equations. Show all your work!

a) $14x - 93 = 49 - 57x$

$+57x \quad +93 \quad +93 \quad +57x$

$71x = 142$

$x = 2$

b) $8x = 2(4x + 2)$

$8x = 8x + 4$

$-8x \quad -8x$

$0 = 4$

no soln

5) Sect 3.3 HW questions. Solve the following equations. Show all your work!

a) $3x - 7 = 8 + 6(x + 2)$

$8 + 6x + 12$

$3x - 7 = 20 + 6x$

$-3x \quad -20 \quad -20 \quad -3x$

$-27 = 3x$

$-9 = x$

b) "Twelve less than -9 times a number is equal to 8 minus 4 times the number." (Hint: #26)

$-9x - 12 = 8 - 4x$

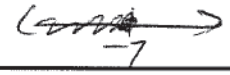
$+4x \quad -8 \quad -8 \quad +4x$

$-20 = 5x$

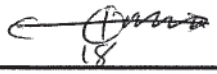
$-4 = x$

6) Graph the following inequalities.

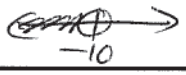
a) $x \leq -7$



b) $x > 18$



c) $-10 > x$



Name: key
10/28/2016
PreAlgebra Quiz (7th Hour)

1) What are the missing steps to solving all algebra problems?
a) Get Rid of parentheses.
b) Combine like terms.
c) Move variable to one side
d) PEMDAS

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

a) $-3(4x-6) > -36 + x$

$-12x + 18 > -36 + x$

$+12x \quad +36 \quad +36 + 12x$

$\frac{54}{13} > \frac{13x}{13}$ $\quad x < 4.15$

b) $-1 + 5x \leq 3x + 2x$

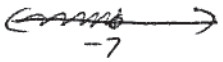
$-5x \quad -5x$

$-1 \leq 0$

all Reals.

3) Graph the following inequalities.

a) $x \leq -7$



b) $x > 18$

c) $-10 > x$

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

a) $5(x+2) + 4 < 6 - x$

$5x + 10 + 4 < 6 - x$

$+x \quad -14 \quad -14 + x$

$6x < -8 \quad x < -\frac{4}{3}$

b) $-(6x+6) - 5 > 1 - 6x$

$-6x - 6 - 5 > 1 - 6x$

$+6x \quad +6x$

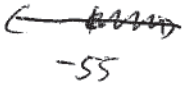
$-11 > 1$

No Sln

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

a) $\frac{x}{-5} \leq 11$

$x \geq -55$



b) $x - 9 < 6$

$x < 15$

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

Name: Key
11/4/2016
PreAlgebra Quiz (7th Hour)

1) Write the prime factorization of the following numbers.

a) $120 = 2^3 \cdot 3 \cdot 5$

10 12
2 5 2 6
2 3

b) $225 = 3^2 \cdot 5^2$

5 45
3 5
3 3

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

a) $-2(x-6) > -36 + x$

$-2x + 12 > -36 + x$
$+2x \quad +36 \quad +36 \quad +2x$
$\frac{48}{3} > \frac{3x}{3}$
$x < 16$

b) $-5 + 10x > \cancel{4x + 6x}$ $10x$
$-5 > 0$
no soln

3) Graph the following inequalities.

a) $1 \leq x$

b) $-15 > x$

c) $x > 5$

4) Write all the factors of the number

a) 8
1, 2, 4, 8

b) 12
1, 2, 3, 4, 6, 12.

5) Factor the following monomials.

a) $19x^3 = 19 \cdot x \cdot x \cdot x$

b) $12x^2y^3 = 2 \cdot 2 \cdot 3 \cdot x \cdot x \cdot y \cdot y \cdot y$.

6) Find the greatest common factor of the numbers.

a) 24, 42

$24 = 2 \cdot 2 \cdot 2 \cdot 3$
$42 = 2 \cdot 3 \cdot 7$
$2 \cdot 3 = 6$

b) 12, 32

$12 = 2 \cdot 2 \cdot 3$
$32 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
4

Name: Key
11/10/2016
PreAlgebra Quiz (7th Hour)

1) Write the prime factorization of the following numbers.

a) 144 $= 3^2 \cdot 2^4$

b) 75 $= 3 \cdot 5^2$

2) Simplify the following fractions.

a) $\frac{8}{12}$ $\frac{2}{3}$

b) $\frac{24x^2}{26x}$ $\frac{12x}{13}$

3) Copy down your work for #26 and #32 from Sect 4.4.

$\frac{39}{42} = \frac{13}{14}$ $\frac{5t}{8} = \frac{5s^2t^2}{40st}$

26) $10 = 2 \cdot 5$
$12 = 2^2 \cdot 3$
$14 = 2 \cdot 7$
$2^2 \cdot 3 \cdot 5 \cdot 7 = 420$

32) $60s^4 = 2^2 \cdot 3 \cdot 5 \cdot s^4$
$24s^3 = 2^3 \cdot 3$
$2^3 \cdot 3 \cdot 5 \cdot s^4$
$20s^4$

4) Copy down your work for #30 and #32 from Sect 4.3.

$\frac{4mn^3}{10n^2} = \frac{2mn}{5}$

5) Find the LCM of the following monomials:

a) $16x^2, 36x$

$2^4 \cdot x^2$
$2^2 \cdot 3^2 \cdot x$
$2^4 \cdot 3^2 \cdot x^2 = 144x^2$

b) $12x^2y, 15xy^2$

$3 \cdot 2^2 \cdot x^2 y$
$3 \cdot 5 \cdot x \cdot y^2$
$2^2 \cdot 3 \cdot 5 \cdot x^2 \cdot y^2$
$60x^2y^2$

6) Find the greatest common factor of the numbers.

a) 63, 12

$63 = 3^2 \cdot 7$
$12 = 2^2 \cdot 3$

b) 13, 24

1

3

Name: Key
11/18/2016
PreAlgebra Quiz (7th Hour)

1) Write the prime factorization of the following numbers.

a) 100 $2^2 \cdot 5^2$

b) 24 $2^3 \cdot 3$

2) Simplify the following fractions.

a) $\frac{9}{15}$ $\frac{3}{5}$

b) $\frac{28x^2}{32x}$ $\frac{7x}{8}$

3) Find the GCF of the following monomials:

a) $18x^3, 32x^2$ $2x^2$

$18 = 2 \cdot 3^2$

$32 = 2^5$

b) $10xy^2, 15x^2y^2$ $5xy^2$

$10 = 2 \cdot 5$

$15 = 3 \cdot 5$

4) Find the LCM of the following monomials:

a) $18x^3, 32x^2$

$2^5 \cdot 3^2 \cdot x^3 = 288x^3$

b) $10xy^2, 15x^2y^2$ $30x^2y^2$

5) Find the LCM of the numbers.

a) 50, 32

$\frac{2 \cdot 5^2}{2^5} = 2^5 \cdot 5^2 = 800$

b) 7, 20 140

6) Find the GCF of the numbers.

a) 50, 32 2

b) 7, 20 1

Name: Key
12/2/2016
PreAlgebra Quiz (7th Hour)

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.

2) Multiply/divide the following expressions.
a) $10^{-4} * 10^{7}$ 10^{3}

b) $\frac{9^{8}}{9^{-5}}$ 9^{13}

3) Multiply/divide the following expressions.
a) $2x^{-9} * 6x^{-14}$ $\frac{16}{x^{23}}$

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

4) Multiply/divide the following expressions.
a) $\frac{6^{-2}}{6^{-8}}$ 6^{6}

b) $2 * 2^{6} * 2^{-9}$ $\frac{1}{2^{2}}$

5) Multiply/divide the following expressions.
a) $\frac{15x^{9}y^{5}}{20x^{4}y^{9}}$ $\frac{3x^{5}}{4y^{4}}$

b) $\frac{8x^{-7}}{9x^{14}}$ $\frac{8}{9x^{21}}$