Retrospective Assignment 1: Number Sense and Algebra

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Name: ______________________________

1. Complete the following statements: /4

Two algebraic expressions are said to be ***equivalent*** if ____

The following is an example of two equivalent expressions: ____

2. The expressions $2x$ and x^2 are ***not equivalent***. Show this in the following ways. /16

(a) $2x$ ***means*** ________________________________

while x^2 ***means*** ______________________________.

For example, if $x = -7$,

$2x$ = ___________ = __________

and x^2 = ___________ = ___________.

(b) $2x$ ***means*** ________ groups of ________ while

x^2 ***means*** ________ groups of ________.

For example, if $x = 4$,

$2x = 2(4)$, which means ______ groups of ______ and

$x^2 = 4^2 = (4)(4)$, which means _____ groups of ____.

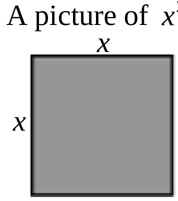
(c) Complete the table. Then draw conclusions by completing the statement to the right of the table.

x	$2x$	x^2
−5		
−4		
−3		
−2		
−1		
0		
1		
2		
3		
4		
5		

From the table, we can see that $2x$ and x^2 agree ***only when*** x =_____ and when x =_____. For all other values of x, $2x$ and x^2 ______________________.

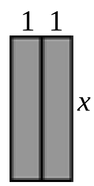
Therefore, $2x$ and x^2 ***cannot be*** ____________.

(d) A picture of x^2 could look like the following:



This picture can represent x^2 because ____________________ ___________________________

On the other hand, a picture of $2x$ could look like the following:



This picture can represent $2x$ because ____________________ ___________________________

From these pictures we must conclude that $2x$ and x^2 are ***not equivalent*** because _____________________ ____.

3. Using both a ***logical argument*** and ***pictures***, explain why $\frac{1}{2}+\frac{1}{3} \neq \frac{2}{5}$. Then complete the statement at the right. /6

(a) ***Logical Argument***

(b) ***Pictures***

Whenever I ***add*** or ***subtract fractions***, I must always remember to ________________ ___________________________

because ____________________ ___________________________

4. First complete the statements found below. Then ***evaluate*** the expression shown at the right. Show all steps!

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$$\frac{-2\left[4^2-3(-7)^2\right]-\left(3^2-2^4\right)}{-6^2+(-6)^2+3(-7)(-8)-4(3-7)}$$

Whenever I ***evaluate expressions***, I must always remember:

1. ***Adding*** and ***subtracting*** involves _______ and ________.

2. ***Multiplying*** and ***dividing*** involves ___________________.

3. I ***should not*** use the ____________ ____________ because

____.

4. I ***should*** use _______________ so that I'll know how to

apply the operations in the correct ___________________.

5. I ***should*** separate the expression into _________________.

5. First complete the statements found below. Then ***substitute*** the given values into the expression shown at the right and ***evaluate***. Show all steps!

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$$\frac{-a^2+3ab^3-6ab^2}{(a-b)(a+b)},\ a=4,\ b=-\frac{1}{2}$$

Whenever I ***substitute values into expressions***, I must:

1. Replace the ***variables*** with empty ___________________ ,

taking care to ensure that ___________________ are not

changed and exponents remain the ________________ .

2. Then the given values should be inserted into the empty

_________________ , taking care to ensure that the correct

values are used.

3. Finally, the resulting expression should be _____________

using _______________ and keeping in mind all the points

made in question __________ .

6. First complete the statements found below. Then ***simplify*** the expression shown at the right. Show all steps!

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$$\frac{(ab^2)^3(-2a^2b)^4}{(-4a)^3} - 2a^5b^3(3a^3b^7 - 6ab) - ab(a^5b^3 + 7ab)$$

Whenever I ***simplify expressions***, I must remember:

1. When ***adding*** and ***subtracting expressions***, I must ___________ ____________ ___________. I should add the opposite ***only when*** ____________________ ____ .

2. When ***multiplying*** and ***dividing*** expressions, I must put ____________ __________ together and use the laws of ____________________. In addition, if I multiply a monomial by a polynomial with two or more terms, I should use the ______________ ________________.

3. I ***must never confuse*** addition and subtraction with multiplication and division. For example, $x^2 + x^2 =$ _________ but $x^2(x^2) =$ _________

7. ***Write expressions*** for the area and perimeter of the following shape.

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