Name ______________________________________ Intermediate Algebra – MTH 104
Date ______________________________________ Class #1

Chapter 1.3 Properties of Arithmetic

Section 1. The Additive Inverse of a Number

1. This is also known as the number's ________________________

2. The notation for the oppositive of a number is ________________

3. Simplify the following:

a. $-(-12)$ ______________ d. $-(-21)$ ______________

b. $-(+6)$ ______________ e. $-[-(+7)]$ ______________

c. $-[-(-15)]$ ______________ f. $-\left(-\frac{3}{2}\right)$ ______________

4, The RULE OF THE DOUBLE NEGATIVE

a. For any real number, a: _________________________

Section 2 Absolute Value

5. Absolute Value: ____

Notation: ______________

a. Consider the Number Line:

< ----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----- >
−10 −9 −8 −7 −6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6 7 8 9 10

Simplify:

a $|+6|$ ______________ f. $-|-4|$ ______________

b. $|-16|$ ______________ g. $-(-|-7|)$ ______________

c. $|-10|$ ______________ h. $-|37|$ ______________

d. $|25|$ ______________ i. $-|-(-3)|$ ______________

Section 3. Addition of Signed Numbers, and Combination of Like Terms

6. When adding two signed numbers together, the rules are as follows:

   a. _____

   b. _____

   c. _____

7. When adding more than two terms together: _____

   _____

8. Rewrite the following with one sign per term.

   a. $(+6) + (-10)$ a. _____

   b. $\left(\frac{3}{5}\right) - \left(-\frac{1}{4}\right)$ b. _____

   c. $(-4) + (-5) - (+10)$ c. _____

   d. $(+16) - (-10) + (-20) - (+4)$ d. _____

   e. $\left(-\frac{4}{5}\right) - \left(-\frac{3}{8}\right) + \left(-2\frac{1}{2}\right)$ e. _____

   f. $|-12| - |-10| + (-6) - (-10)$ f. _____

Section 4. Subtraction of two Signed Numbers

9. When subtracting two signed numbers, the rules are as follows:

   a. _____

   b. _____

10. Rewrite the following subtraction expressions using ONE SIGN PER TERM

   a. $5 - (+7)$ a. _____

   b. $(-9) - (-10)$ b. _____

c. $\left(-\frac{4}{5}\right)-\left(+\frac{2}{3}\right)$ c. _____

Section 5. The Properties of Arithmetic

For All Real Numbers a, b, and c.	Addition	Multiplication
The Commutative Property		
The Associative Property		
The Identity Property		
The Inverse Property		
The Distributive Property (for multiplication over addition)		

11. Write the property of Arithmetic that justifies the step in the following proofs.

a. $x(y+z) = xy + xz$ _____

b. $4 \cdot \frac{1}{4} = 1$ _____

c. $6 \cdot 0 = 0$ _____

d. $(x + y) = 1(x + y)$ _____

e. $x + (-x) = 0$ _____

Section 6. Multiplication and Division of Signed Numbers.

12. Rules for Multiplication and Division of Signed Numbers.

a. _____

b. _____

13. When there are more that two factors in a product, or more than two terms in a quotient:

a. _____

b. _____