Class 1: Introduction to Algebra (50 points)

Objective: The objective of this class is to understand the basic algebra terms that will be throughout the course. In addition, learn how to balance an equation and what the order of operations consist of. These three topics are crucial for success in algebra, therefore it is important to understand them to do well in the course.

Outcome: I expect you to know the twelve terms often used in this algebra course and be able to recognize an example. In addition, I expect you to understand how to balance an equation through addition, subtraction, multiplication and division to get “x = value”. Lastly, I expect you to know the order of operations and be able to use it to solve an expression.

Directions: All of the following information should be written in a google document then shared to me via e-mail. Since I cannot see your work on a piece of paper, I expect your answers to be described to me in a sentence form.

Part I: Definitions (10 points)
This are to complete this part through submission method on the home page.

Part II: Balancing an equation (20 points)
Read the following notes, play the balancing game, then solve the equations at the end in google docs, while explaining your process in a sentence form.

Notes:

What is an equation?
An equation says that two things are equal. It will have an equals sign " = " like this:

x **+** **4** **=** **10**

That equations says: what is on the left (x + 4) is equal to what is on the right (10)

So an equation is like a statement "*this* equals *that*"

When you add or subtract the same number from both sides the equation stays in balance.

Example:

x + 4 = 10

- 4 = - 4

x = **6**

Therefore, each equation will have a solution like " x=6 ". First, try to solve the equation by adding and subtracting until you get an answer like "x = value" To check your answer, plug the value of X back. The equation should equal each other if you have the correct answer.

Example: (**6**) + 4 = 10, 10 = 10**.**

Practice: Visit the following link and balance the equations until you understand the process. This game will not be required on your google docs, however it is suggested that you play the game because it will benefit you in understanding how to balance.

In addition, balancing is the same procedure for multiplying and dividing. What you do to one side, you must do to the other to balance the equation.

Example: 2x +1 = 5 .. Subtract 1 on both sides, then divide by two on both sides, x = 2, plus it in 2(2)+1 =5, 5=5.

Google Docs: Answer each of the following equations in the google document. You must write a sentence like I did above to explain how you got to your answer. Don't forget to check your work!

1. x + 14 = 30
2. 10 - x = 20
3. -3x + 5 = -35
4. 6 + 5 + x = 14
5. 10x + 9 = 99
6. 3x - 3 = 2x + 1
7. 5x +3 = 100

8. -x +7 = 4

9. 2x + 1 = -3x + 6

10. 5x + 1 = 4x + 6

Part III: Order of Operations (20 points)
Reading the following notes then solve the questions at the end in google docs.

Notes:

Order of Operations is a collection of rules that define which procedures to do first in an expression. For example: 7 + (6 × 5 + 3) ... what part should you calculate first?

This order of operations mnemonic will help you remember what to calculate first!
P- Please (Parenthesis)
E- Excuse (Exponents)
M- My (Multiplication)
D- Dear (Division)
A- Aunt (Add)
S- Sally (Subtract)

Can you think of your own mnemonic?

P	Parentheses first
E	Exponents (ie. Powers and Square Roots, etc.)
MD	Multiplication and Division (left-to-right)
AS	Addition and Subtraction (left-to-right)

Examples:

1. 3 + 6 x 2 = ?

> Multiplication before Addition: First 6 x 2 = 12, then 3 + 12 = **15**

2. 12 / 6 x 3 / 2 = ?

> Multiplication and Division rank equally, so just go left to right. First 12 / 6 = 2, then 2 x 3 = 6, then 6 / 2 = **3**

Google Docs: Answer each of the following equations in google doc. You must write a sentence or two similar to before to explain how you got to your answer.

1. $6 \div 3 + 4 \times 2$

2. $6 \times 4 - 12 \div 3 - 8$

3. $(4 \times 4) - 3 \times 3 - 16 \div 4$

4. $20 - (3 \times 2^3 - 5)$

5. $5 + 2)^2 - 9 \times 3 + 2^3$

Congratulations… You have finished class one!