**Section 1-3 Notes: Solving Linear Equations**Intro: Here’s some important review from Algebra 1.

**Golden Rule of Solving Equations:** What you do to one side of the equation you MUST do to the other.
Example: Solve 
(Subtracted 9 to both sides)
(Multiplied by the reciprocal)
***x = 14*** (Reduced the fraction)
CHECK YOUR WORK: 

b. 5n + 11 = 7n - 9
11 = 2n - 9 (Subtracted 5n to both sides)
20 = 2n (Added 9 to both sides)
10 = n (Divided by 2 to both sides)
CHECK: 5(10) + 11 = 7(10) - 9
50 + 11 = 70 - 9
61 = 61 Ã
c. 4(3x - 5) = -2(-x + 8) - 6x
12x - 20 = 2x - 16 - 6x (Distributive Property)
12x - 20 = -4x - 16 (Combined Like Terms)
16x - 20 = -16 (Added 4x to both sides)
16x = 4 (Added 20 to both sides)
x = 1/4 (Divided by 16 to both sides)

d.
(Multiply by common denominators)
4x + 3 = 12x - 2 (Distribute)
3 = 8x - 2 (Subtracted 4x)
5 = 8x (Added 2)5/8 = x (Divided by 8)

**Word Problems (Yea!)**

Example: A real estate broker’s base salary is $18,000. She earns a 4% commission on total sales. How much must she sell to earn $55,000?
Solution:
*(1) Figure out an equation*Income = Base Salary + Commission • Sales
*(2) Define your variables*Income = $55,000 Base Salary = $18,000
Commission = 0.04 Sales = *x*
*(3) Plug in and solve
55,000 = 18,000 + .04x
37,000 = .04x
925,000 = x
(4) Explain your answer (complete sentence)*
The broker must sell $925,000 worth of real estate to earn $55,000 in income.

**Section 1-4 Notes: Rewriting Equations and Formulas**

Intro: More super cool algebra 1 review! :)

Example: Solve for *y*
7x - 3y = 8
-3y = 8 - 7x (Subtracted 7x)
(Divided by -3)
(Simplified)

Example: If x + xy = 1, find *y* when x = -1.
xy = 1 - x (Subtracted *x*)
(Divided by *x*)
(Substituted x = -1)
(Simplified)

**Word Problems (Boo-yah!)**

Example: You are organizing a benefit concert. (Thanks!) You plan on having only two types of tickets: adult and child. Write an equation with more than one variable that represents the revenue from the convert. How many variables are in your equation?

Solution:
(1) Define your variables
R = Revenue pa = Adult Ticket Price
pc = Child Ticket Price
A = # adults C = # children

(2) Write your equation
R = pa • A + pc • C
Your turn: For the concert above, your goal is to sell $25,000 in tickets. You plan to charge $25.25 for adults and expect to sell 800 adult tickets. How much should you charge per child if you plan to sell 200 child tickets? 300? 400?

Solution: R = pa • A + pc • C
Let’s solve for pc.

R = $25,000 pa = 25.25 A = 800 C = 200

pc = $24.

For C = 300, pc = $16.
For C = 400, pc = $12