**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 http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_41.jpg  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_42.jpg(Subtracted 9 to both sides)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_43.jpg(Multiplied by the reciprocal)  
***x = 14*** (Reduced the fraction)  
CHECK YOUR WORK: http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_44.jpg  
  
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.http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_45.jpg  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_46.jpg(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)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_47.jpg(Divided by -3)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_48.jpg(Simplified)  
  
  
Example: If x + xy = 1, find *y* when x = -1.  
xy = 1 - x (Subtracted *x*)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_49.jpg(Divided by *x*)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_410.jpg(Substituted x = -1)  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_411.jpg(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.  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_412.jpg  
R = $25,000 pa = 25.25 A = 800 C = 200  
http://www.paly.net/~sfriedla/algebratwo/Notes/Unit1/AlgebraIINotes1_3and1_413.jpg  
pc = $24.  
  
For C = 300, pc = $16.   
For C = 400, pc = $12