**Grade 9 Mathematics**

**Equations**

**Solve Multi-Step Equations with Variables on Both Sides**

 **- pictorially and symbolically (paper and pencil)**

 Solve the equations. Show all appropriate steps.

a) 3x + 9 = 6 b) 2 + 3x = -4 c) 2x – 3x + 5x + 6 = -18

 d) 3(2x + 5) + 2(x + 6) = 51 e) 4(g + 5) = 5(g – 3)

 f) 6 + 4(3x + 1) = 2(4x – 3) + 32 g) 12 – (x + 4) = 5 – ( -2x – 6)

**Eliminate Denominators from an Equation to Simplify Solving**

Solve the equations below.

 Start each question by multiplying all parts of the equation by a common denominator in

 order to eliminate the denominators.

a)  b)  c) 

**Verify Solutions to Equations are Correct or Incorrect**

For any of the equations in the above sections you can substitute in your solution and see

 if the Left Side of the equation equals the Right Side of the equation.

**Use Equations for Problem Solving Situations**

For the problems below, choose a variable and write an inequality that represents the situation. Solve the problem and graph it on a number line.

a) John was working to make money for his summer trip to Math World (much like

 Disney World only more fun!!) He planned to take at least $490 spending cash. If

 John’s job paid $9.80 an hour, how many hours would he need to work in order to

 have the spending cash he hoped for.

b) A charity event was held and the organization was hoping to make over $2000 from

 donations and payment from people attending. If the company expected $500 in

 donations, how many people need to attend for them to reach their goal if the cost to

 attend is $3.25?