MATH 1314

Section 2.1

Solving Linear Equations

Definition: To solve an equation in the variable x using the **algebraic method** is to use the rules of algebra to isolate the unknown x on one side of the equation.

Definition: To solve an equation in the variable x using the **graphical method** is to move all terms to one side of the equation and set those terms equal to y. Sketch the graph to find the values of x where $y = 0$.

Example 1: Solve the following equation **algebraically**.

$$5y + 6 = -18 - y$$

Example 2: Solve following equation **algebraically**.

$$7 + 2(3 - 8x) = 4 - 6(1 + 5x)$$

Example 3: Solve following equation **algebraically**.

$$\frac{2}{5}(x-1)=\frac{7}{3}$$

Example 4: Solve following equation **algebraically**.

$$-\frac{3}{8x}+\frac{1}{12x}=2$$

Example 5: Find the x-intercept and y-intercept of the following equation. Express the answers in coordinate point form.

a. $-7x + 8y - 63 = 0$

b. $x^2 - y - 16 = 0$

c. $4x^2 - y^2 - 81 = 0$