Math 060 WORKSHEET NAME:___________________________

2.1 The Addition Property of Equality

Solving Equations

In this section, we will look at mathematical statements that are used to describe real-life situations called equations. This idea is central to an Algebra course. We will then look at several properties used to solve the equations.

Recall: An equation represents the equality of two _______________.

A **solution** to an equation is a value(s) for the variable(s) that yield a true statement when the values are substituted for the variable(s)

EXAMPLE 1: Show that 10 is a solution to $2x+3=23$.

It is very easy to show that a given value is or isn't a solution to an equation. It is not as easy to find the solution. We will now look at different techniques for finding the solution.

Consider the equation: $x=2$ The solution to the equation is _____.

We like equations that are in this form because they are easy to solve by inspection. In the equation $x=2$, we say that we have isolated the variable.

Consider the equation: $x-8=-6$ The solution to the equation is _____.

This equation has the same solution as the first one. In this case we say that the equations are **equivalent**.

We will now look at a technique for isolating the variable. To isolate the variable, we **undo** what is happening to the variable. When an equation has the variable isolated, the coefficient of x is ______.

ADDITION PROPERTY OF EQUALITY	SUBTRACTION PROPERTY OF EQUALITY
$x-3=4$ How do you **undo** $x-3+$ ___ $=4+$ ___ subtracting 3? $x=$ ___ ______________________ You may add any value as long as you do it to both sides.	$x+10=7$ How do you **undo** $x+10-$ ___ $=7-$ ___ adding 10? $x=$ ____ ______________________ You may subtract any value as long as you do it to both sides.

EXAMPLE 2: Solve and check each of the following.

a.) $x-4=8$ b.) $x+67=-90$ c.) $34=34+j$ d.) $0=x+45$ e.) $-6x+9+7x=-2$

CHECK: