Section 2.1: THE ADDITION PROPERTY OF EQUALITY

When you are done with your homework you should be able to…

- Identify linear equations in one variable
- Use the addition property of equality to solve equations
- Solve applied problems using formulas

WARM-UP:

Simplify:

1. $\frac{1}{2}-\frac{2}{3}\div\frac{5}{9}+\frac{3}{10}$

2. $-40\div 5\cdot 2$

LINEAR EQUATIONS IN ONE VARIABLE

In Chapter 1, we learned that an _____ is a statement that two _____ expressions are _____.We determined whether a given number is an equation's _____ by substituting that number for each occurrence of the _____. When the _____ resulted in a true statement, that _____ was a _____. When the substituted number resulted in a _____ statement, that number was _____ a _____.

VOCABULARY

Solving an equation: The _____ of finding the _____ (or _____) that make the equation a _____ statement. These numbers are called the _____ or _____ of the equation, and we say that they _____ the equation.

DEFINITION OF A LINEAR EQUATION IN ONE VARIABLE

A _____ _____ in _____ _____ _____ is an equation that can be written in the form

where _____, _____, and _____ are real numbers, and _____.

Example 1: Give three examples of a linear equation in one variable.

1.

2.

3.

Example 2: Give two examples of a nonlinear equation in one variable.

1.

2.

VOCABULARY

Equivalent equations: Equations that have the _____ solution are _____ _____.

THE ADDITION PROPERTY OF EQUALITY

The _____ real number or _____ expression may be _____ to _____ sides of an _____ without changing the equation's _____. That is,

Example 3: Solve the following equations. Check your solutions.

1. $y-5=-18$

2. $18+z=14$

3. $x+10.6=-9$

4. $-\frac{1}{8}+x=-\frac{1}{4}$

5. $-3x-5+4x=9$

6. $7x+3=6(x-1)+9$

ADDING AND SUBTRACTING VARIABLE TERMS ON BOTH SIDES OF AN EQUATION

Our goal is to _____ all the _____ terms on one side of the equation. We can use the _____ _____ of _____ to do this.

APPLICATIONS

1. The cost, *C*, of an item (the price paid by a retailer) plus the markup, *M*, on that item (the retailer's profit) equals the selling price, *S*, of the item. The formula is $C + M = S$.

   The selling price of a television is $650. If the cost to the retailer for the television is $520, find the markup.

2. What is the difference between solving an equation such as $5y + 3 - 4y - 8 = 6 + 9$ and simplifying an algebraic expression such as $5y + 3 - 4y - 8$?