**Mini-Lecture 1.1**

 **Linear Equations**

**Learning Objectives:**

1. Solve a linear equation

2. Solve equations that lead to linear equations

3. Solve problems that can be modeled by linear equations

**Examples:**

1.  

3. A total of $51,000 is to be invested, some in bonds and some in certificates of deposit (CDs). If the amount invested in bonds is to exceed that in CDs by $3,000, how much will be invested in each type of investment?

4. Shannon, who is paid time-and-a-half for hours worked in excess of  hours, had gross weekly wages of  for  hours worked. What is her regular hourly wage?

**Teaching Notes:**

* Emphasize the need for students to check their answers in the original equation.
* Remind students about the order of operations. For example, .
* Review finding the least common multiple.
* Remind students when multiplying through by the LCM to multiply every term on both sides of the equation. When one of the terms is an integer, many students will forget to multiply that term by the LCM.
* Encourage students to find the domain before attempting to solve the rational equation. This may remind them to look for extraneous solutions.
* Refer students to “Steps for Setting Up Applied Problems” in the textbook.
* When solving formulas for a particular variable, refer students back to ***“***Procedures That Result in Equivalent Equations.”
* Many times when solving a formula for a variable inside parentheses, students will divide rather than using the distributive property first. It is helpful to show the solution by both methods so that students can see the differences in the two forms of the answer.

**Answers:**

1. ***(a)  (b)  (c) ***

2. ***(a)  (b)  (c)*** *No solution* ***(d) ***

3.  in CDs;  in bonds

4. /hour