Section 7.2

READING AND SELF-DISCOVERY QUESTIONS 7.2

1. When more than one principle of equality is required to solve an equation, how do you decide which principle to use first? Give an example.

   Normally, the property of addition or subtraction would be used prior to multiplication or division. This way we can get all the variable terms on one side and constants on the other side, and then simplify before dividing or multiplying.

2. Why should you simplify each side of an equation before beginning to solve the equation?

   The chances of making errors is significantly reduced.

3. What should you do if there are variables terms on both sides of an equation?

   Isolate the variable terms on one side of the equation.

CRITICAL THINKING QUESTIONS 7.2

1. Do you think it is better to use the addition principle before you use multiplication or division principles when solving an equation with more than one step? Explain your answer.

   Yes, in almost every context. You will want to re-write the equation to get variables and variable terms together and constants together.

2. How would you explain the process of solving an equation with more than one step to another student?

   I would communicate a methodology: 1) clear the parentheses; 2) simplify; 3) Isolate the variables and variable terms; 4) simplify; 5) divide by the coefficient of the variable term; 6) substitute the solution into the equation to see if it is true.

DEMONSTRATE YOUR UNDERSTANDING 7.2

1. Solve the following equations:

a) $56 = -2x - 10$	$56 + 10 = -2x - 10 + 10$ $66 = -2x$ $-33 = x$ *Validate* $56 \stackrel{?}{=} 2(-33) - 10$ $56 \stackrel{?}{=} 66 - 10$ $56 = 56$ ✓
b) $7x + 3 - 4x = 6$	$3x + 3 = 6$ $3x + 3 - 3 = 6 - 3$ $3x = 3$ $x = 1$ *Validate* $7 \cdot (1) + 3 - 4 \cdot (1) \stackrel{?}{=} 6$ $7 + 3 - 4 \stackrel{?}{=} 6$ $6 = 6$ ✓

IDENTIFY AND CORRECT THE ERRORS 7.2

In the second column, identify the error(s) you find in the following worked solution and describe the error made. Solve the problem correctly in the third column.

Problem	Describe Error	Correct Process
Solve: $3x - 5x = 4$ **Worked Solution** *(What is wrong here?)* $3x - 5x = 4$ $-3x - 3x$ $-8x = 4$ $x = -\frac{1}{2}$	**The student did not collect like terms on the left side, nor subtract $3x$ from the right side.**	$3x - 5x = 4$ $-2x = 4$ $\frac{-2x}{-2} = \frac{4}{-2}$ $x = -2$ *Validate* $3(-2) - 5(-2) \stackrel{?}{=} 4$ $-6 + 10 \stackrel{?}{=} 4$ $4 = 4$ ✓