

**FEBRUARY 17, 2016**

**UNIT 5: LINEAR EQUATIONS AND  
INEQUALITIES**

**SECTION 6.2:  
SOLVING EQUATIONS BY  
USING BALANCE  
STRATEGIES**

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*MATH 9*



## **WHAT'S THE POINT OF TODAY'S LESSON?**

**We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 3" OR "PR3" which states:**

**"Model and solve problems using linear equations in a variety of forms ( $ax = b$  ;  $ax + b = c$  ;  $ax + b = cx + d$  ;  $a(bx + c) = d(ex + f)$  etc.) concretely, pictorially and symbolically where a, b, c, d, e and f are rational numbers."**



**What does THAT mean???**

**SCO PR3 means ALGEBRA!!!**



**WARM UP:**

**SOLVE AND VERIFY THE FOLLOWING EQUATION:**

$$\text{a) } \overbrace{-3(x-4)} = 18$$

$$-3x + 12 = 18$$

$$-3x + 12 - 12 = 18 - 12$$

$$\frac{-3x}{-3} = \frac{6}{-3}$$

$$x = -2$$

**WARM UP:**

**SOLVE AND VERIFY THE FOLLOWING EQUATION:**

$$\text{a) } \frac{-3(x-4)}{-3} = \frac{18}{-3}$$

$$x - 4 = -6$$

$$x - 4 + 4 = -6 + 4$$

$$x = -2$$

| LS         | RS |
|------------|----|
| $-3(x-4)$  | 18 |
| $-3(-2-4)$ |    |
| $-3(-6)$   |    |
| 18         |    |

$$LS = RS \therefore x = -2.$$

**WARM UP:**

**SOLVE AND VERIFY THE FOLLOWING EQUATION:**

b)  $\frac{5}{6} + 2x = \frac{3}{4}$        $\text{Lcm} = 12$

$$\frac{12}{1} \left( \frac{5}{6} \right) + 12(2x) = \frac{12}{1} \left( \frac{3}{4} \right)$$

$$10 + 24x = 9$$

$$10 + 24x - 10 = 9 - 10$$

$$\frac{24x}{24} = \frac{-1}{24}$$

$$x = \frac{-1}{24}$$

| LS   | RS            |
|--|---------------|
| $\frac{5}{6} + 2x$                             | $\frac{3}{4}$ |
| $\frac{5}{6} + 2 \left( \frac{-1}{24} \right)$ |               |
| $\frac{5}{6} + \left( \frac{-1}{12} \right)$   |               |
| $\frac{10}{12} - \frac{1}{12}$                 |               |
| $\frac{9}{12} \div 3$                          |               |
| $\frac{3}{4}$                                  |               |

$$\text{LS} = \text{RS} \therefore x = \frac{-1}{24}$$

**HOMEWORK QUESTIONS???**  
**(Worksheet, "ax + b = c", #1 to #16)**

$$12. \quad 15 = 7 + \frac{12z}{7}$$

$$7(15) = 7(7) + \cancel{7} \left( \frac{12z}{\cancel{7}} \right)$$

$$105 = 49 + 12z$$

$$105 - 49 = 49 + 12z - 49$$

$$\frac{56}{12} = \frac{\cancel{12}z}{\cancel{12}}$$

$$\frac{14}{3} = z$$

**HOMEWORK QUESTIONS???**  
**(Worksheet, "ax + b = c", #1 to #16)**

$$12. \quad 15 = 7 + \frac{12z}{7}$$

$$15 - 7 = 7 + \frac{12z}{7} - 7$$

$$8 = \frac{12z}{7}$$

$$3 \frac{\frac{7}{12} \left( \frac{8}{1} \right)}{2} = \frac{\frac{7}{12} \left( \frac{12z}{7} \right)}{7}$$

$$\frac{14}{3} = z$$



**HOMEWORK QUESTIONS???**  
**(Worksheet, "ax + b = c", #1 to #16)**

$$13. \quad 0 = 10K - \frac{1}{5}$$

$$5(0) = 5(10K) - \cancel{5} \left( \frac{1}{\cancel{5}} \right)$$

$$0 = 50K - 1$$

$$0 + 1 = 50K - 1 + 1$$

$$\frac{1}{50} = \frac{\cancel{50}K}{\cancel{50}}$$

$$\frac{1}{50} = K$$

**HOMEWORK QUESTIONS???**  
**(Worksheet, "ax + b = c", #1 to #16)**

$$16. \quad \frac{2}{5} - \frac{1}{5}r = 2$$

$$\cancel{5} \left( \frac{2}{\cancel{5}} \right) - \cancel{5} \left( \frac{1}{\cancel{5}} r \right) = 5(2)$$

$$2 - r = 10$$

$$2 - r - 2 = 10 - 2$$

$$-r = 8$$

$$r = -8$$

**HOMEWORK QUESTIONS???**  
**(Worksheet, "ax + b = c", #1 to #24)**

$$18. \quad \frac{1}{2}g + \frac{5}{3} = \frac{1}{6} \quad \text{LCM} = 6$$
$$\frac{\cancel{6}^3}{\cancel{1}^1} \left( \frac{\cancel{1}}{\cancel{2}^1} g \right) + \frac{\cancel{6}^2}{\cancel{1}^1} \left( \frac{\cancel{5}}{\cancel{3}^1} \right) = \frac{\cancel{6}^1}{\cancel{1}^1} \left( \frac{\cancel{1}}{\cancel{6}^1} \right)$$

$$3g + 10 = 1$$

$$3g + 10 - 10 = 1 - 10$$

$$\frac{\cancel{3}g}{\cancel{3}} = \frac{-9}{3}$$

$$g = -3$$