Unit 2: Solving linear equations by combining like terms Lesson 03 Solving multi-step linear equations

If an equation has several terms of the same type, **combine** those terms before proceeding to solve the equation.

Example 3: Find the solution to this equation: 14p - 9 + 6p + 1 = 32

$$14p - 9 + 6p + 1 = 32$$

$$20p = 9 = 32$$

$$\frac{18}{20} = \frac{40}{20}$$

$$\frac{20p}{20} = \frac{40}{20}$$

$$p = 2$$

The solution of some equations requires multiple steps.

If an equation has a multiplier in front of a parentheses (or any other similar group), distribute the multiplier.

Example 4: Solve 3(y - 4) + 12 = -6

$$3(\overline{y}-4) + 12 = -6$$

$$3y - 72 + 12 = -6$$

$$3y = -6$$

$$3\overline{y} = -\frac{6}{3}$$

$$y = -\overline{2}$$

Example 5: Solve
$$-9 - 3(4t - 1) = 30$$

 $-9 - 3(4t - 1) = 30$
 $-9 - 12t + 3 = 30$
 $-9 - 12t + 3 = 30$
 $-12t = 30$
 $t = -3$

*Example 6: Find the solution to this equation: 5(k-2) + 2[k-3(k+2)] = 0

$$5(k-2)+2[k-3(k+2)] = 0$$

$$5k-10+2[k-3k-6] = 0$$

$$5k-10+2[-2k-6] = 0$$

$$5k-10-4k-12 = 0$$

$$k-22 = 0$$

$$K = 22$$

Assignment: Solve the following equations.

1. 6x + 2x = - 48	211z + 9 - 4z = 2
3. 3(x – 5) = 30	4. $14 = 7r - 4 + 2r$
5. 2(v + 10) – 6 = 2	6. 11 = 7(f – 3) + 21

7. $b + 9(b + 4) = -3$	8. – 22 + 2(4n + 10) = 10
98 = 7[w - (-1)]	10. $(6-t) + (7-t) - (4-t) = 0$

*11. 2a + 3[4(2 – a) – 6(1 + a)] = 5

*12. (x + 4) - x - (5 - 6x) = 1