Notes: U1A L3 Variables in Two Positions	Name: _____ HR: _____

Target Skill(s): Solve equations with variables in more than one position by simplifying and solving the resulting two-step equation.

Quick Review - Fraction Coefficients

A fraction next to a variable lie _____ is multiplying the variable. Undo the fraction coefficient by multiplying both sides by its reciprocal.

R1. $\frac{2}{5}x = 8$	**R2.** $\frac{3}{4}x = 15$	**R3.** $-\frac{5}{6}x = 10$
x = _____	x = _____	x = _____

What Are Like Terms?

Terms: A _____, a _____, or a PRODUCT of a _____ and _____

Examples:

What does 3x mean?	
What are LIKE TERMS?	
What are NOT like terms?	

Combining Like Terms

Ex: $5x + 6x - 2x$	Ex: $-3x - 6 + 5x + 2$	You Try: $3x + 4x - 6 + 2$	You Try: $6 - 3y + 2 - 5y + 6x$

Properties Used When Solving Equations (POE = "property of equality"….it means properties of equations.)

Rules of the Solving Game:

1. **Allowed: Combine like terms IF they are on _____ side of the equal (=) sign**
2. **Allowed: + or - POE**
3. **Allowed: • or ÷ POE**

The 3-Step Plan

1.	**Simplify BOTH sides. Combine like terms on LEFT side then Combine like terms on RIGHT side. NO POE yet**
2.	**If variable terms are on opposite sides of =, add/subtract the SMALLER variable term from BOTH sides. +/- POE**
3.	**Solve the remaining two-step equation: use +/- POE first, then */÷ POE.**

Guided Examples: First Simplify, Then Move Variable Terms, Then 2 step solve

I DO	WE DO
$5x - 2 + 2x = 19$ Answer: _____	$10 = 8x - 6 - 3x$ Answer: _____

First Simplify, Then Move Variable Terms

Before moving anything across the equal sign, combine like terms on each side. Then use +/- POE to eliminate the smaller variable term.

1. $7x + 2x = 45$ Answer: _____	**2.** $11p - 5p = 18$ Answer: _____	**3.** $3x + 5x - 2 = 6x + 8$ Answer: _____

Practice - Variables on Both Sides

4. $10x = 6x + 28$ Answer: _____	**5.** $3x + 8 = 5x - 4$ Answer: _____	**6.** $6x + 2 = -2x + 26$ Answer: _____
7. $4x + 10 = x$ Answer: _____	**8.** $7x - 6 = 2x$ Answer: _____	**9.** $3x + 5 = -x$ Answer: _____
10. $\frac{1}{2}x + 3 = x$ Answer: _____	**11.** $\frac{3}{2}x - 6 = \frac{5}{2}x + 2$ Answer: _____	**11.** $\frac{3}{4}x + 1 = \frac{1}{2}x + 4$ Answer: _____