Day 5 + 6 Guided Notes

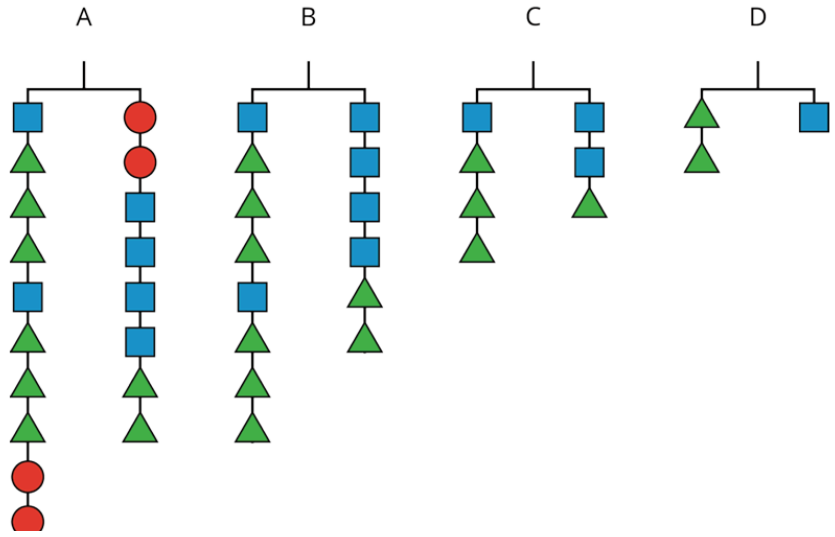
Name: _____

OBJECTIVE

Students will compare and contrast solution paths to solve an equation in one variable by performing the same operation on each side.

Day 5

1. Figures A, B, C, and D show the result of simplifying the hanger in Figure A by removing equal weights from each side.



a. Write the equation that goes with each figure:

A: _____

B: _____

C: _____

D: _____

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Practice Problems:

1. Match these equation balancing steps with the description of what was done in each step.

Step 1:	Step 2:	Step 3:
$12x - 6 = 10$	$6x - 3 = 5$	$6x = 8$
$6x - 3 = 5$	$6x = 8$	$x = \frac{4}{3}$

Descriptions to match with each step:

A: Add 3 to both sides

B: Multiply both sides by $\frac{1}{6}$

C: Divide both sides by 2

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2. Match each of the following equations on the left to the corresponding operation done on the right side:

a. $3x + 7 = 5x$

$7 = 2x$

b. $12x + 3 = 6$

$4x + 1 = 2$

c. $10 - 6x = 4 + 5x$

$7 - 6x = 1 + 5x$

d. $-3(4x - 3) = -15$

$4x - 3 = 5$

e. $\frac{5x}{-3} = \frac{12}{1}$

$5x = -36$

1. Multiply each side by -⅓
2. Add -3x to each side
3. Multiply each side by -3
4. Add -3 to each side
5. Multiply each side by $\frac{1}{2}$

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Day 6

1. $-14 + 6k + 7 - 2k = 1 + 5k$

2. $2x(9 - 5) = 5x + 2$

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Practice Problems:

1. Comparing Methods and Steps of Solving Linear Equations:

Noah and Lin both solved the equation $14a = 2(a - 3)$.

Do you agree with either of them? Why?

Noah's solution:

$$14a = 2(a - 3)$$
$$14a = 2a - 6$$
$$12a = -6$$
$$a = -\frac{1}{2}$$

Lin's solution:

$$14a = 2(a - 3)$$
$$7a = a - 3$$
$$6a = -3$$
$$a = -\frac{1}{2}$$

2. Equation 1

$x - 3 = 2 - 4x$

Which of these have the same solution as Equation 1? Be prepared to explain your reasoning.

Equation A	Equation B	Equation C	Equation D
$2x - 6 = 4 - 8x$	$x - 5 = -4x$	$2(1 - 2x) = x - 3$	$-3 = 2 - 5x$

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3.

Here is an equation, and then all the steps Clare wrote to solve it:

$$\begin{aligned} 14x - 2x + 3 &= 3(5x + 9) \\ 12x + 3 &= 3(5x + 9) \\ 3(4x + 1) &= 3(5x + 9) \\ 4x + 1 &= 5x + 9 \\ 1 &= x + 9 \\ -8 &= x \end{aligned}$$

Here is the same equation, and the steps Lin wrote to solve it:

$$\begin{aligned} 14x - 2x + 3 &= 3(5x + 9) \\ 12x + 3 &= 3(5x + 9) \\ 12x + 3 &= 15x + 27 \\ 12x &= 15x + 24 \\ -3x &= 24 \\ x &= -8 \end{aligned}$$

a. Are both of their solutions correct? Explain your reasoning.

b. Describe some ways the steps they took are alike and different.