Name _____ Date _____

Learning Target: I will solve multi-step linear equations

Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 1: Guided Practice (Whole Group)

1. Say the equation and use number sense to find each solution.

Equation	Solution	Why?
$x + 3 = 5$ **What number plus 3 is equal to 5?**	$x =$ _____	Because _____ + 3 = 5
$x + 6 = 10$	$x =$ _____	Because _____ + 6 = 10
$x - 3 = 5$	$x =$ _____	Because _____ + 3 = 5
$8 - x = 6$	$x =$ _____	Because $8 -$ _____ $= 6$
$2x = 8$	$x =$ _____	Because $2 \cdot$ _____ $= 8$
$\frac{1}{2}x = 6$	$x =$ _____	Because $\frac{1}{2} \cdot$ _____ $= 6$

2. a. Is 5 a solution to the equation $2x + 1 = 9$? _____

b. How do you know? _____

Name _____ Date _____

Learning Target: I will solve multi-step linear equations

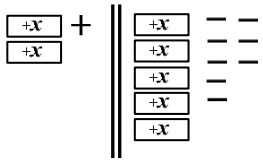
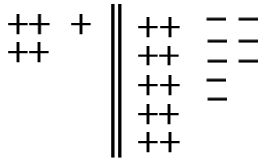
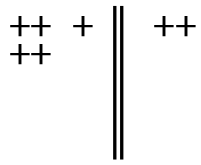
Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 1: Guided Practice (Whole Group – Cont.)

Definition: *The solution to an equation is the value of the variable that makes the equation true.*

3. Below are steps to check if $x = 2$ is a solution to the equation $2x + 1 = 5x - 8$.
For each solution step, discuss what happened and fill in the missing information.

Draw	Write	Describe
	$2x + 1 = 5x - 8$	
	$2x + 1 = 5x + -8$	**Changed subtraction to "add the opposite"** $5x - 8$ ➔ _____ + _____ to model the equation with algebra tiles
	$2 \bullet 2 + 1 \stackrel{?}{=} 5 \bullet 2 + -8$	**Substituted** $2x$ ➔ 2 • _____ and $5x$ ➔ 5 • _____ to evaluate each algebraic expression
	$4 + 1 \stackrel{?}{=} 10 + -8$	**Multiplied** _____ • _____ ➔ 4 and _____ • _____ ➔ 10 to simplify using order of operations
	$5 \neq 2$	**Added and Compared** _____ + _____ ➔ 5 and _____ + _____ ➔ 2 5 and 2 are _____ to simplify each expression and check for equality
	2 is **not** a solution	**Decided** 2 is not a solution because the two sides of the equation are _____

Name _____ Date _____

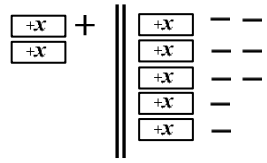
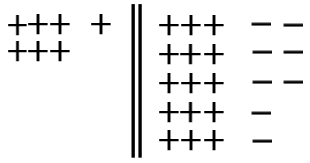
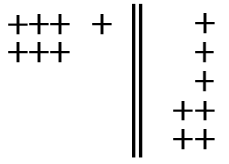
Learning Target: I will solve multi-step linear equations Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 1: Guided Practice (Whole Group – Cont.)

Definition: *The solution to an equation is the value of the variable that makes the equation true.*

4. Below are steps to check if $x = 3$ is a solution to the equation $2x + 1 = 5x - 8$.
For each solution step, discuss what happened and fill in the missing information.

Draw	Write	Describe
	$2x + 1 = 5x - 8$	
	$2x + 1 = 5x + -8$	**Changed subtraction to "add the opposite"** $5x - 8$ ➔ _____ + _____ to model the equation with algebra tiles
	$2 \bullet 3 + 1 \stackrel{?}{=} 5 \bullet 3 + -8$	**Substituted** $2x$ ➔ $2 \bullet$ _____ and $5x$ ➔ $5 \bullet$ _____ to evaluate each algebraic expression
	$6 + 1 \stackrel{?}{=} 15 + -8$	**Multiplied** _____ • _____ ➔ 6 and _____ • _____ ➔ 15 to simplify using order of operations
	$7 = 7$	**Added and Compared** _____ + _____ ➔ 7 and _____ + _____ ➔ 7 7 and 7 are _____ to simply each expression and check for equality
	3 is a solution	**Decided** 3 is a solution because the two sides of the equation are _____

Name _____ Date _____

Learning Target: I will solve multi-step linear equations Algebra 1 – Readiness Standard 1 – 8.EE.7b

Session 1: Guided Practice (Pairs)

Directions: Complete the steps to check if the given value is a solution.

5. Is $x = 2$ a solution? (Yes) or No

$4x - 1 = x + 5$

$4x + -1 = x + 5$

$4 \cdot$ _____ $+ -1 \stackrel{?}{=}$ _____ $+ 5$

_____ $+ -1 \stackrel{?}{=}$ _____

_____ $=$ _____

6. Is $x = 4$ a solution? Yes or No

$3x - 4 = 5x - 10$

$3x + -4 = 5x +$ _____

$3 \cdot$ _____ $+ -4 \stackrel{?}{=} 5 \cdot$ _____ $+$ _____

_____ $+ -4 \stackrel{?}{=}$ _____ $+$ _____

_____ _____

7. Is $x = 4$ a solution? (Yes) or No

$2(3x - 4) = x + 12$

$2(3 \cdot$ _____ $+$ _____$) = x + 12$

$2($_____ $+$ _____$) \stackrel{?}{=}$ _____ $+ 12$

$2($_____$) \stackrel{?}{=}$ _____

_____ $=$ _____

8. Is $x = 7$ a solution? Yes or No

$3x - 6 = 5(x - 4)$

$3x + -6 = 5(x +$ _____$)$

$3 \cdot$ _____ $+ -6 \stackrel{?}{=} 5 ($_____ $+$ _____$)$

_____ $+ -6 \stackrel{?}{=} 5 ($_____$)$

_____ _____

9. Is $x = 6$ a solution? Yes or (No)

$2(3x + 1) = 4(x + 3)$

$2(3 \cdot$ _____ $+ 1) = 4($_____ $+ 3)$

$2($_____ $+ 1) \stackrel{?}{=} 4($_____$)$

$2($_____$) \stackrel{?}{=}$ _____

_____ $\neq$ _____

10. Is $x = 5$ a solution? Yes or No

$3(x + 5) = 5(2x - 4)$

$3(x + 5) \stackrel{?}{=} 5(2x +$ _____$)$

$3($_____ $+ 5) \stackrel{?}{=} 5(2 \cdot$ _____ $+$ _____$)$

$3($_____$) \stackrel{?}{=} 5($_____ $+$ _____$)$

_____ $\stackrel{?}{=} 5($_____$)$

_____ _____

Name _____ Date _____

Learning Target: I will solve multi-step linear equations

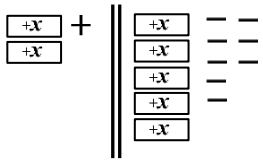
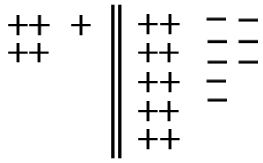
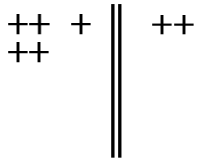
Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 1: Guided Practice (Teacher Notes – Cont.)

Definition: *The solution to an equation is the value of the variable that makes the equation true.*

3. Below are steps to check if $x = 2$ is a solution to the equation $2x + 1 = 5x - 8$.
For each solution step, discuss what happened and fill in the missing information.

Draw	Write	Describe
	$2x + 1 = 5x - 8$	➔ can be read as *"Became" or "Changed To"*
	$2x + 1 = 5x + -8$	**Changed subtraction to "add the opposite"** $5x - 8$ ➔ **$\underline{5x}$ + $\underline{-8}$** to model the equation with algebra tiles
	$2 \bullet 2 + 1 \stackrel{?}{=} 5 \bullet 2 + -8$	**Substituted** $2x$ ➔ $2 \bullet \underline{2}$ and $5x$ ➔ $5 \bullet \underline{2}$ to evaluate each algebraic expression
	$4 + 1 \stackrel{?}{=} 10 + -8$	**Multiplied** $\underline{2} \bullet \underline{2}$ ➔ 4 and $\underline{5} \bullet \underline{2}$ ➔ 10 to simplify using order of operations
	$5 \neq 2$	**Added and Compared** $\underline{4} + \underline{1}$ ➔ 5 and $\underline{10} + \underline{-8}$ ➔ 2 5 and 2 are **not equal** to simply each expression and check for equality
	2 is **not** a solution	**Decided** 2 is not a solution because the two sides of the equation are **not equal**

Name _____ Date _____

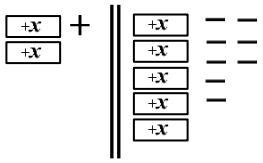
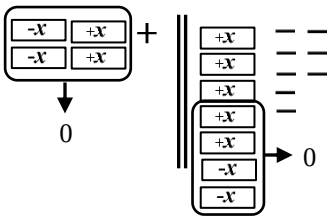
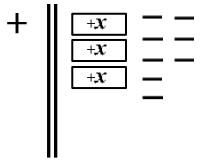
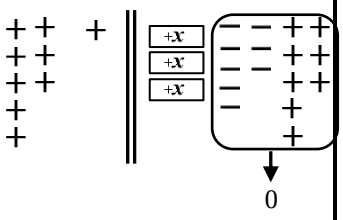
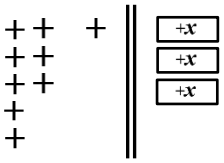
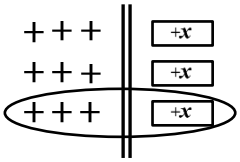
Learning Target: I will solve multi-step linear equations

Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 2: Guided Practice (Whole Group)

1. Below are steps to find the solution to the equation $2x + 1 = 5x - 8$.
For each solution step, discuss what happened and fill in the missing information.

Draw	Write	Describe
	$2x + 1 = 5x - 8$	
	$2x + 1 = 5x + -8$	**Changed subtraction to "add the opposite"** $5x - 8$ ➔ _____ + _____ to model the equation with algebra tiles
	$\underline{-2x \qquad -2x}$	**Added** $-2x$ to _____ and _____ to get the terms with the variable on one side of the equal sign
	$1 = 3x + -8$	**Removed Zero Pairs** _____ + $-2x$ ➔ 0 and _____ + $-2x$ ➔ $3x$ to simplify the equation
	$\underline{+8 \qquad +8}$	**Added** 8 to _____ and _____ to get the term with the variable by itself
	$9 = 3x$	**Removed Zero Pairs** _____ + 8 ➔ 9 and _____ + 8 ➔ 0 to simplify the equation
	$\frac{\_\_}{3} \quad \frac{\_\_}{3}$ $3 = x$	**Divided** _____ and _____ by 3 to get the variable by itself **Simplified** _____ ÷ 3 ➔ 3 and _____ ÷ 3 ➔ x to find the solution to the equation

Name _____ Date _____

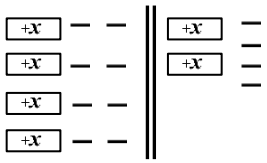
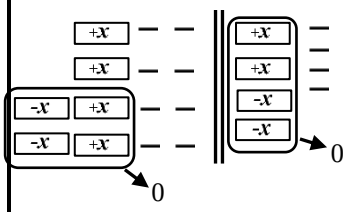
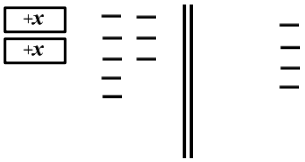
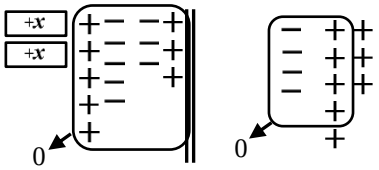
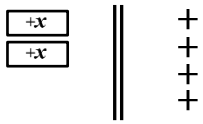
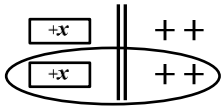
Learning Target: I will solve multi-step linear equations

Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 2: Guided Practice (Whole Group – Cont.)

2. Below are steps to find the solution to the equation $4(x - 2) = 2x - 4$.
For each solution step, discuss what happened and fill in the missing information.

Draw	Write	Describe
	$4(x - 2) = 2x - 4$	
	$4(x + -2) = 2x + -4$	**Changed subtraction to "add the opposite"** $4(x - 2)$ ➔ _____ and $2x - 4$ ➔ _____ to model the equation with algebra tiles
	$4x + -8 = 2x + -4$	**Multiplied** 4 • ___ ➔ ____ and 4 • ___ ➔ ____ to eliminate the parentheses
	-2x -2x	**Added** -2x to _____ and _____ to get the terms with the variable on one side of the equal sign
	$2x + -8 = -4$	**Removed Zero Pairs** _____ + -2x ➔ 2x and _____ + -2x ➔ 0 to simplify the equation
	+8 +8	**Added** 8 to _____ and _____ to get the term with the variable by itself
	$2x = 4$	**Removed Zero Pairs** _____ + 8 ➔ 0 and _____ + 8 ➔ 4 to simplify the equation
	$\frac{\_\_}{2} \quad \frac{\_\_}{2}$ $x = 2$	**Divided** _____ and _____ by 2 to get the variable by itself **Simplified** _____ ÷ 2 ➔ x and _____ ÷ 2 ➔ 2 to find the solution to the equation

Name _____ Date _____

Learning Target: I will solve multi-step linear equations Algebra 1 – Readiness Standard 1 – 8.EE.7b

Session 2: Guided Practice (Pairs)

Directions: Complete the steps used to solve each linear equation.

3. $4x - 1 = x + 5$ $4x + -1 = x + 5$ $3x + -1 = \_\_\_\_\_$ $3x = \_\_\_\_\_$ $x = \_\_\_\_\_$	**4.** $3x - 4 = 5x - 10$ $3x + -4 = 5x + \_\_\_\_\_$ $-4 = \_\_\_\_\_ + \_\_\_\_\_$ $6 = 2x$ $\_\_\_\_\_ = x$
5. $2(3x - 4) = x + 12$ $2(3x + \_\_\_\_\_) = x + 12$ $2 \bullet 3x + 2 \bullet \_\_\_\_\_ = x + 12$ $6x + \_\_\_\_\_ = x + 12$ $5x + \_\_\_\_\_ = 12$ $5x = \_\_\_\_\_$ $x = \_\_\_\_\_$	**6.** $3x - 6 = 5(x - 4)$ $3x + -6 = 5(x + \_\_\_\_\_)$ $3x + -6 = 5 \bullet x + \_\_\_\_\_ \bullet \_\_\_\_\_$ $3x + -6 = \_\_\_\_\_ + \_\_\_\_\_$ $-6 = \_\_\_\_\_ + \_\_\_\_\_$ $14 = 2x$ $\_\_\_\_\_ = x$
7. $2(3x + 1) = 4(x + 3)$ $2 \bullet \_\_\_\_\_ + 2 \bullet \_\_\_\_\_ = 4 \bullet \_\_\_\_\_ + 4 \bullet \_\_\_\_\_$ $6x + 2 = \_\_\_\_\_ + \_\_\_\_\_$ $2x + 2 = \_\_\_\_\_$ $2x = \_\_\_\_\_$ $x = \_\_\_\_\_$	**8.** $3(x + 5) = 5(2x - 4)$ $3(x + 5) = 5(\_\_\_\_\_ + \_\_\_\_\_)$ $3 \bullet \_\_\_\_\_ + 3 \bullet \_\_\_\_\_ = 5 \bullet \_\_\_\_\_ + 5 \bullet \_\_\_\_\_$ $3x + 15 = \_\_\_\_\_ + \_\_\_\_\_$ $15 = \_\_\_\_\_ + \_\_\_\_\_$ $35 = \_\_\_\_\_$ $\_\_\_\_\_ = x$

Algebra 1 Quick Check – Form A

Readiness Standard 1 - 8.EE.7b

Name_____ Date_____

Learning Target: I will solve multi-step linear equations.

Directions: Answer each question and show your work. (Work time: 5 minutes)

1.

What value of x makes the equation below true?

$$2x + 15 = 8x - 9$$

2.

What is the solution to the equation below?

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

Algebra 1 Quick Check – Form A

Readiness Standard 1 - 8.EE.7b (Continued)

3.

What value of x makes the following true?

$2(5x - 4) = 3x + 13$

4.

What is the solution to the equation below?

$2(4x + 1) = 3(x - 6)$

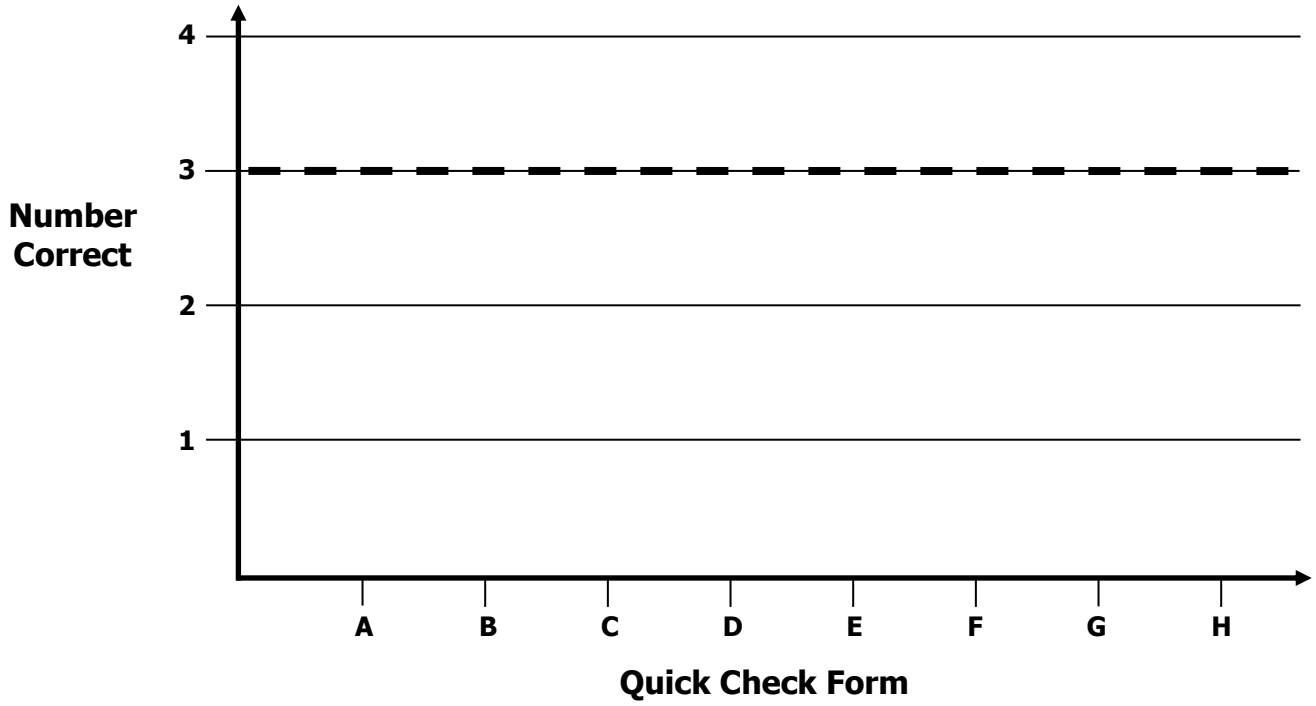
Algebra 1 Growth Chart

Readiness Standard 1 - 8.EE.7b

Name_____

Learning Target: I will solve multi-step linear equations.

Goal: 3 out of 4 correct



Intervention	Date	Score
Session 1:		
Session 2:		
Session 3:		
Session 4:		
Session 5:		
Session 6:		
Session 7:		
Session 8:		

Name _____ Date _____

Learning Target: I will solve multi-step linear equations

Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 3: Guided Practice (Whole Group)

Directions: Below are steps to find the solution to each equation.
For each solution step, discuss what happened and fill in the missing information.

	Write	Describe
1.	$3x + 2 = 5x - 6$	
	$3x + 2 = 5x + -6$ $-3x \quad -3x$	**Changed to Addition** $5x - 6$ ➔ _____ + _____ to make it easier to combine like terms
	$2 = 2x + -6$ $+6 \quad +6$	**Added** _____ + _____ ➔ 0 and _____ + _____ ➔ $2x$ to get the terms with the variable on one side of the equal sign
	$\frac{8}{2} = \frac{2x}{2}$	**Added** _____ + _____ ➔ 8 and _____ + _____ ➔ 0 to get the term with the variable by itself
	$4 = x$	**Divided** _____ ÷ _____ ➔ 4 and _____ ÷ _____ ➔ x to find the solution to the equation
2.	$3(x + 2) = 5x - 6$	
	$3(x + 2) = 5x + -6$	**Changed to Addition** $5x - 6$ ➔ _____ + _____ to make it easier to combine like terms
	$3x + 6 = 5x + -6$ $-3x \quad -3x$	**Multiplied** 3 • _____ ➔ _____ and 3 • _____ ➔ _____ to eliminate the parentheses
	$6 = 2x + -6$ $+6 \quad +6$	**Added** _____ + _____ ➔ 0 and _____ + _____ ➔ $2x$ to get the terms with the variable on one side of the equal sign
	$\frac{12}{2} = \frac{2x}{2}$	**Added** _____ + _____ ➔ 12 and _____ + _____ ➔ 0 to get the term with the variable by itself
	$6 = x$	**Divided** _____ ÷ _____ ➔ 6 and _____ ÷ _____ ➔ x to find the solution to the equation

Name _____ Date _____

Learning Target: I will solve multi-step linear equations Algebra 1 – Readiness Standard 1 – 8.EE.7b

Session 3: Guided Practice (Pairs)

Directions: Solve each linear equation.

3. $4x - 1 = x + 8$

$4x + -1 = x + 8$

$3x + -1 = \_\_\_\_\_$

$3x = \_\_\_\_\_$

$x = \_\_\_\_\_$

4. $3x - 4 = 5x - 12$

$3x + -4 = 5x + \_\_\_\_\_$

$-4 = \_\_\_\_\_ + \_\_\_\_\_$

$x = \_\_\_\_\_$

5. $3(2x - 7) = x + 9$

$3(2x + \_\_\_\_\_) = x + 9$

$3 \bullet 2x + 3 \bullet \_\_\_\_\_ = x + 9$

$x = \_\_\_\_\_$

6. $2x - 4 = 6(x - 4)$

$2x + -4 = 6(x + \_\_\_\_\_)$

$2x + -4 = 6 \bullet x + \_\_\_\_\_ \bullet \_\_\_\_\_$

$x = \_\_\_\_\_$

7. $2(7x + 1) = 3(x + 8)$

$x = \_\_\_\_\_$

8. $2(x + 9) = 5(2x - 6)$

$x = \_\_\_\_\_$

Algebra 1 Quick Check – Form B

Readiness Standard 1 - 8.EE.7b

Name_____ Date_____

Learning Target: I will solve multi-step linear equations.

Directions: Answer each question and show your work. (Work time: 5 minutes)

1.

What value of x makes the equation below true?

$$3x - 6 = 8x + 9$$

2.

What is the solution to the equation below?

$$3(x + 2) = 5x - 6$$

Algebra 1 Quick Check – Form B

Readiness Standard 1 - 8.EE.7b (Continued)

3.

What value of x makes the following true?

$2(4x - 6) = 2x + 12$

4.

What is the solution to the equation below?

$4(3x + 6) = 3(x - 7)$

Name _____ Date _____

Learning Target: I will solve multi-step linear equations

Algebra 1 – Readiness Standard 1 – 8.EE.7b

Readiness for solving systems of linear equations

Session 4: Guided Practice (Whole Group)

Directions: Below are steps to find the solution each equation.
For each solution step, discuss what happened and fill in the missing information.

	Write	Describe
1.	$3x + 6 = 5x - 4$	
	$3x + 6 = 5x + -4$	**Changed to Addition** $5x - 4$ ➔ _____ + _____ to make it easier to combine like terms
	$-3x \quad -3x$	
	$6 = 2x + -4$	**Added** _____ + _____ ➔ 0 and _____ + _____ ➔ $2x$ to get the terms with the variable on one side of the equal sign
	$+4 \quad +4$	
	$\frac{10}{2} = \frac{2x}{2}$	**Added** _____ + _____ ➔ 10 and _____ + _____ ➔ 0 to get the term with the variable by itself
	$5 = x$	**Divided** _____ ÷ _____ ➔ 5 and _____ ÷ _____ ➔ x to find the solution to the equation
2.	$7x + 3 = 2(x - 6)$	
	$7x + 3 = 2(x + -6)$	**Changed to Addition** $2(x - 6)$ ➔ 2(_____ + _____) to make it easier to combine like terms
	$7x + 3 = 2x + -12$	**Multiplied** 2 • _____ ➔ _____ and 2 • _____ ➔ _____ to eliminate the parentheses
	$-2x \quad -2x$	
	$5x + 3 = -12$	**Added** _____ + _____ ➔ $5x$ and _____ + _____ ➔ 0 to get the terms with the variable on one side of the equal sign
	$-3 \quad -3$	
	$\frac{5x}{5} = \frac{-15}{5}$	**Added** _____ + _____ ➔ 0 and _____ + _____ ➔ -15 to get the term with the variable by itself
	$x = -3$	**Divided** _____ ÷ _____ ➔ x and _____ ÷ _____ ➔ -3 to find the solution to the equation

Name _____ Date _____

Learning Target: I will solve multi-step linear equations Algebra 1 – Readiness Standard 1 – 8.EE.7b

Session 4: Guided Practice (Pairs)

Directions: Solve each linear equation.

3. $3x - 5 = x + 9$	**4.** $4x - 7 = 7x + 8$
5. $3(4x - 9) = x + 6$	**6.** $3x - 6 = 6(x - 3)$
7. $2(5x + 6) = 6(x - 2)$	**8.** $2(x + 9) = 7(2x - 6)$

Algebra 1 Quick Check – Form C

Readiness Standard 1 - 8.EE.7b

Name_____ Date_____

Learning Target: I will solve multi-step linear equations.

Directions: Answer each question and show your work. (Work time: 5 minutes)

1.

What value of x makes the equation below true?

$$2x + 6 = 6x - 10$$

2.

What is the solution to the equation below?

$$3(x + 2) = x - 8$$

Algebra 1 Quick Check – Form C

Readiness Standard 1 - 8.EE.7b (Continued)

3.

What value of x makes the following true?

$4(3x + 1) = 3x - 14$

4.

What is the solution to the equation below?

$4(3x - 6) = 2(x + 3)$

Algebra 1 Quick Check – Form D

Readiness Standard 1 - 8.EE.7b

Name_____ Date_____

Learning Target: I will solve multi-step linear equations.

Directions: Answer each question and show your work. (Work time: 5 minutes)

1.

What value of x makes the equation below true?

$$2x - 10 = 5x + 2$$

2.

What is the solution to the equation below?

$$3(x - 3) = x + 7$$

Algebra 1 Quick Check – Form D

Readiness Standard 1 - 8.EE.7b (Continued)

3.

What value of x makes the following true?

$4(2x - 6) = 3x + 11$

4.

What is the solution to the equation below?

$2(3x + 1) = 4(x - 2)$