$\mathrm{M} \Delta \mathrm{TH}$ $\qquad$
$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 1: Guided Practice (Whole Group)

1. Below are steps to find the number of solutions to the equation $2 x+1=3 x-4$. For each solution step, discuss what happened and fill in the missing information.

| Draw | Write | Describe |
| :---: | :---: | :---: |
|  | $\begin{aligned} & 2 x+1=3 x-4 \\ & 2 x+1=3 x+-4 \end{aligned}$ $-2 x \quad-2 x$ $1=x+-4$ $5=x$ <br> One Solution $\begin{aligned} 2 x+1 & =3 x+-4 \\ 2(5)+1 & =3(5)+-4 \\ 10+1 & =15+-4 \\ 11 & =11 \end{aligned}$ | Changed subtraction to "add the opposite" $3 x-4 \rightarrow$ $\qquad$ $+$ $\qquad$ to model the equation with algebra tiles. <br> Added $-2 x$ to $\qquad$ and $\qquad$ to get the terms with the variable on one side of the equal sign. <br> Removed Zero Pairs $\qquad$ $+-2 x \rightarrow 0$ and $\qquad$ $+-2 x \rightarrow 0$ to simplify the equation. <br> Added 4 to $\qquad$ and $\qquad$ to get the term with the variable by itself. <br> Removed Zero Pairs $\qquad$ $+4 \rightarrow 5$ and $\qquad$ $+4 \rightarrow 0$ <br> to simplify the equation. <br> Decided there is One Solution because $x=$ $\qquad$ <br> Verified by substituting $\qquad$ for $x$. <br> The left and right sides of the equal sign are $\qquad$ , only when $x=$ $\qquad$ <br> How many solutions? $\qquad$ |

M $\triangle$ TH $\qquad$
$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 1: Guided Practice (Whole Group)

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

| Draw | Write | Describe |
| :---: | :---: | :---: |
|  | $\begin{aligned} & 2 x+1=2 x-1 \\ & 2 x+1=2 x+-1 \end{aligned}$ $\begin{array}{ll} -2 x & -2 x \\ \hline \end{array}$ $1 \neq-1$ <br> No Solutions $\begin{aligned} 2 x+1 & =2 x+-1 \\ 2(4)+1 & =2(4)+-1 \\ 8+1 & =8+-1 \\ 9 & \neq 7 \end{aligned}$ | Changed subtraction to "add the opposite" $2 x-1 \rightarrow$ $\qquad$ $\qquad$ to model the equation with algebra tiles. <br> Added $-2 x$ to $\qquad$ and $\qquad$ to get the terms with the variable on one side of the equal sign. <br> Removed Zero Pairs $\qquad$ $+-2 x \rightarrow 0$ and $\qquad$ $+-2 x \rightarrow 0$ to simplify the equation. <br> Decided there are No Solutions since the simplified equation is $\qquad$ <br> Any number chosen will create a false equation! <br> Verified by substituting $\qquad$ for $x$. <br> The left and right sides of the equal sign are $\qquad$ when $x=$ $\qquad$ and any other number you try! <br> How many solutions? $\qquad$ |

Name $\qquad$
$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

Algebra 1 - Readiness Standard 2-8.EE.7a

## Session 1: Guided Practice (Pairs)

Directions: Complete the steps to solve each linear equation, find the number of solutions and verify your answer on the graph.

| 3. $\begin{aligned} 3 x+10 & =-3 x+10 \\ 6 x+10 & = \\ 6 x & = \\ x & = \end{aligned}$ <br> Number of Solutions = | 4. $\begin{aligned} 3 x+10 & =3 x-10 \\ 3 x+10 & =3 x+-10 \\ 10 & \neq \end{aligned}$ <br> Number of Solutions = |
| :---: | :---: |
| 5. $\begin{aligned} 4 x+1 & =2(2 x+3) \\ 4 x+1 & =4 x+ \\ 1 & \neq \end{aligned}$ <br> Number of Solutions = $\qquad$ | 6. $\begin{aligned} 6 x-4 & =2(2 x+1) \\ 6 x+\ldots & =2(2 x+1) \\ 6 x+-4 & =4 x+\ldots \\ 2 x & = \\ x & = \end{aligned}$ $\qquad$ |
| 7. $\begin{aligned} 3 x+2 & =2 x+1-5 x+7 \\ 3 x+2 & =2 x+1+ \\ 3 x+2 & =-3 x+ \\ 6 x+2 & = \\ 6 x & = \\ x & = \end{aligned}$ <br> Number of Solutions $=$ | 8. $\begin{aligned} 3 x-5+x & =5+4 x-4 \\ 3 x+-5+x & =5+4 x+ \\ 4 x+-5 & = \\ -5 & \neq \end{aligned}$ <br> Number of Solutions = $\qquad$ |

# Algebra 1 Quick Check - Form A 

Readiness Standard 2-8.EE.7a
Name $\qquad$ Date

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

| 1. $2 x+8=-2 x+8$ <br> No Solutions One Solution Infinitely Many | 2. $6 x-2=6 x+2$ <br> No Solutions One Solution Infinitely Many |
| :---: | :---: |
| 3. $5 x+6=5 x+6$ <br> No Solutions One Solution Infinitely Many | 4. $3 x+9=-2 x-9-x$ <br> No Solutions One Solution Infinitely Many |
| 5. $2 x+6=2(x+3)$ <br> No Solutions One Solution Infinitely Many | 6. $6 x+3=3(2 x+1)+1$ <br> No Solutions One Solution Infinitely Many |

## Name

Learning Target: I will find the number of solutions to linear equations in one variable.
Goal: 5 out of 6 correct


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

M $\triangle$ TH $\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 2: Guided Practice (Whole Group)

1. Below are steps to find the number of solutions to the equation $3 x+4=3 x-4$. For each solution step, discuss what happened and fill in the missing information.

| Draw | Write | Describe |
| :---: | :---: | :---: |
| $+\\|=$ | $\begin{aligned} & 3 x+1=3 x-2 \\ & 3 x+1=3 x+-2 \end{aligned}$ $\begin{array}{ll} -3 x & -3 x \\ \hline \end{array}$ $1 \neq-2$ <br> No Solutions $\begin{aligned} 3 x+1 & =3 x+-2 \\ 3(-4)+1 & =3(-4)+-2 \\ -12+1 & =-12+-2 \\ -11 & \neq-14 \end{aligned}$ | Changed subtraction to "add the opposite" $3 x-2 \rightarrow$ $\qquad$ + $\qquad$ to model the equation with algebra tiles. <br> Added -3 $x$ to $\qquad$ and $\qquad$ to get the terms with the variable on one side of the equal sign. <br> Removed Zero Pairs $\qquad$ $+-3 x \rightarrow 0$ and $\qquad$ $+-3 x \rightarrow 0$ to simplify the equation. <br> Decided there are No Solutions since the simplified equation is $\qquad$ <br> Any number chosen will create a false equation! <br> Verified by substituting $\qquad$ for $x$. <br> The left and right sides of the equal sign are $\qquad$ when $x=$ $\qquad$ and any other number you try! <br> How many solutions? $\qquad$ |

$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 2: Guided Practice (Whole Group)

2. Below are steps to find the number of solutions to the equation $2 x+1=3 x-\mathbf{3 - x}+\mathbf{4}$. For each solution step, discuss what happened and fill in the missing information.

| Draw | Write | Describe |
| :---: | :---: | :---: |
|  | $\begin{gathered} 2 x+1=3 x-3-x+4 \\ 2 x+1=3 x+-3+-x+4 \\ 2 x+1=3 x+-x+-3+4 \\ 2 x+1=2 x+1 \\ 2 x \\ 1=1 \end{gathered}$ <br> Infinitely Many Solutions $\begin{gathered} 2 x+1=3 x+-3+-x+4 \\ 2(7)+1=3(7)+-3+-(7)+4 \\ 14+1=21+-3+-7+4 \\ 15=15 \end{gathered}$ | Changed subtraction to "add the opposite" $3 x-3-x+4 \rightarrow$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ <br> to model the equation with algebra tiles. <br> Reordered the Terms $3 x+-3+-x+4 \rightarrow \ldots+{ }_{C}^{+}+{ }^{+}+$ <br> to get like terms together. <br> Combined Like Terms $\qquad$ $+$ $\qquad$ $\rightarrow 2 x$ and $\qquad$ $+$ $\qquad$ $\rightarrow 1$ to simplify the equation. <br> Added $-2 x$ to $\qquad$ and $\qquad$ to get the terms with the variable on one side of the equal sign. <br> Removed Zero Pairs $\qquad$ $+-2 x \rightarrow 0$ and $\qquad$ $+-2 x \rightarrow 0$ to simplify the equation. <br> Decided there are No Solutions since the simplified equation is $\qquad$ . <br> Any number chosen will create a true equation. <br> Verified by substituting $\qquad$ for $x$. <br> The left and right sides of the equal sign are $\qquad$ when $x=$ $\qquad$ and any other number you try. <br> How many solutions? $\qquad$ |

Name $\qquad$
$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

Algebra 1 - Readiness Standard 2 - 8.EE.7a

## Session 2: Guided Practice (Pairs)

Directions: Complete the steps to solve each linear equation, find the number of solutions and verify your answer on the graph.

| 3. $\begin{aligned} 4 x+7 & =4 x+9 \\ 4 x+7 & = \\ 7 & \neq \end{aligned}$ <br> Number of Solutions $=$ $\qquad$ | 4. $\begin{aligned} -5 x+17 & =5 x-3 \\ -5 x+17 & =5 x+-3 \\ 17 & =10 x+- \\ \ldots & =10 x \\ \ldots & =x \end{aligned}$ <br> Number of Solutions = $\qquad$ |
| :---: | :---: |
| 5. $\begin{aligned} 6 x-4 & =2(3 x-2) \\ 6 x+-4 & =2(3 x+\ldots \\ 6 x+-4 & =6 x+\ldots \\ -4 & = \end{aligned}$ $\qquad$ | 6. $\begin{aligned} 4 x-6 & =2(2 x+1) \\ 4 x+\ldots & =2(2 x+1) \\ 4 x+-6 & =4 x+\ldots \\ -6 & \neq 2 \end{aligned}$ <br> Number of Solutions = $\qquad$ |
| 7. $\begin{aligned} 3 x-5+x & =5+2 x-4 \\ 3 x+-5+x & =5+2 x+ \\ 4 x+-5 & =\ldots+ \\ 2 x+-5 & = \\ 2 x & =- \\ x & = \end{aligned}$ <br> Number of Solutions = $\qquad$ | 8. $\begin{aligned} 3 x-5+x & =2+4 x-7 \\ 3 x+-5+x & =2+4 x+ \\ 4 x+-5 & = \\ -5 & = \end{aligned}$ <br> Number of Solutions = $\qquad$ |

# Algebra 1 Quick Check - Form B 

Readiness Standard 2-8.EE.7a
Name $\qquad$ Date

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

| 1. $8 x+2=8 x-2$ <br> No Solutions One Solution Infinitely Many | 2. $3 x-6=-3 x+6$ <br> No Solutions One Solution Infinitely Many |
| :---: | :---: |
| 3. $4 x-6=x-2+x-4$ <br> No Solutions One Solution Infinitely Many | 4. $3 x+1=3 x+1$ <br> No Solutions One Solution Infinitely Many |
| 5. $2 x+8=2(x+3)+1$ <br> No Solutions One Solution Infinitely Many | 6. $5 x+6=2(2 x+4)$ <br> No Solutions One Solution Infinitely Many |

$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

Readiness for solving systems of linear equations

## Session 3: Guided Practice (Whole Group)

Directions: Below are steps to find the number of solutions to $2 x+5=6 x+4-2 x-5$. For each solution step, discuss what happened and fill in the missing information.

| Write | Describe |
| :---: | :---: |
| 1. $\begin{aligned} 2 x+5 & =6 x+4-2 x-5 \\ 2 x+5 & =6 x+4+-2 x+-5 \\ 2 x+5 & =4 x+-1 \\ & -2 x \\ \hline-2 x & =2 x+-1 \\ +1 & +1 \\ 6 & =2 x \\ 2 & \\ 3 & =x \end{aligned}$ | Changed to Addition $6 x+4-2 x-5 \rightarrow$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ to make it easier to combine like terms. <br> Combined Like Terms $\qquad$ $+$ $\qquad$ $\rightarrow 4 x$ and $\qquad$ $+$ $\qquad$ $\rightarrow-1$ to simplify the expression. <br> Added $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow 2 x$ to eliminate the term with the variable on one side of the equal sign. <br> Added $\qquad$ $+$ $\qquad$ $\rightarrow 6$ and $\qquad$ $+$ $\qquad$ $\rightarrow 0$ to get the term with the variable by itself. <br> Divided $\qquad$ $\div$ $\qquad$ $\rightarrow 3$ and $\qquad$ $\div$ $\qquad$ $\rightarrow x$ to find the value. <br> Decided The number of solutions is $\qquad$ , since the simplified equation is $x=$ - $\qquad$ |

$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 3: Guided Practice (Whole Group - Cont.)

| Write | Describe |
| :---: | :---: |
| 2. $6 x+15=3(2 x+5)$ $6 x+12=6 x+15$ <br> $-6 x \quad-6 x$ $12 \neq 15$ <br> No Solutions | Multiplied $\qquad$ $\bullet$ $\qquad$ $\rightarrow 6 x$ and $\qquad$ $\qquad$ $\rightarrow 15$ to eliminate the parentheses. <br> Added and Compared $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow 0$ 12 and 15 are $\qquad$ to eliminate the term with the variable on one side of the equal sign and check for equality. <br> Decided The number of solutions is , $\qquad$ since the simplified equation is . $\qquad$ |
| 3. $5 x+15=8 x+7-3 x+8$ $5 x+15=8 x+7+-3 x+8$ $5 x+15=5 x+15$ $-5 x-5 x$ $15=15$ <br> Infinitely Many Solutions | Changed to Addition $8 x+7-3 x+8 \rightarrow$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ to make it easier to combine like terms. <br> Combined Like Terms $\qquad$ $+$ $\qquad$ $\rightarrow 5 x$ and $\qquad$ $\qquad$ $\qquad$ $+$ $\rightarrow 15$ to simplify the expression. $\qquad$ <br>  <br> Added and Compared $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow 2 x$ 15 and 15 are $\qquad$ to eliminate the term with the variable on one side. <br> Decided The number of solutions is , $\qquad$ since the simplified equation is _. $\qquad$ |

Name $\qquad$
$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

Algebra 1 - Readiness Standard 2 - 8.EE.7a

## Session 3: Guided Practice (Pairs)

Directions: Complete the steps to solve each linear equation and find the number of solutions.

| 4. $\begin{aligned} 4 x+3 & =-4 x+3 \\ 8 x+3 & = \\ & = \\ x & = \end{aligned}$ <br> Number of Solutions = $\qquad$ | 5. $\begin{aligned} 7 x+5 & =7 x-5 \\ 7 x+5 & =7 x+ \\ 5 & \neq \end{aligned}$ <br> Number of Solutions = $\qquad$ |
| :---: | :---: |
| 6. $\begin{aligned} 5 x+4 & =2(3 x+1) \\ 5 x+4 & =6 x+ \\ 4 & =x+ \\ & =x \end{aligned}$ <br> Number of Solutions = | 7. $\begin{aligned} & 4 x-12=4(x-3) \\ & 4 x+-12=4(\ldots+\ldots) \end{aligned}$ <br> Number of Solutions $=$ |
| 8. $\begin{aligned} & 2 x+6=5 x+20-7 x-2 \\ & 2 x+6=5 x+20+\ldots+ \end{aligned}$ <br> Number of Solutions = $\qquad$ | 9. $2 x-6+x=5-2 x+9$ <br> Number of Solutions = $\qquad$ |

# Algebra 1 Quick Check - Form C 

Readiness Standard 2-8.EE.7a
Name $\qquad$ Date

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

| 1. $3 x+4=-3 x+10$ <br> No Solutions One Solution Infinitely Many | 2. $4 x-1=4 x-1$ <br> No Solutions One Solution Infinitely Many |
| :---: | :---: |
| 3. $5 x+1=3 x+1+2 x$ <br> No Solutions One Solution Infinitely Many | 4. $2 x+4=-2 x-4$ <br> No Solutions One Solution Infinitely Many |
| 5. $8 x+5=4(2 x+1)+1$ <br> No Solutions One Solution Infinitely Many | 6. $6 x+4=2(3 x+4)$ <br> No Solutions One Solution Infinitely Many |

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Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 4: Guided Practice (Whole Group)

Directions: Below are steps to find the number of solutions to $3 x+6=6 x+7-2 x-4$.
For each solution step, discuss what happened and fill in the missing information.

| Write | Describe |
| :---: | :---: |
| 1. $3 x+6=6 x+7-2 x-4$ | $\rightarrow$ can be read as "Became" or "Changed To" |
| $3 x+6=6 x+7+-2 x+-4$ | Changed to Addition $6 x+7-2 x-4 \rightarrow$ $\qquad$ $+$ $\qquad$ $+$ $\qquad$ $+$ to make it easier to combine like terms. |
| $3 x+6=4 x+3$ | Combined Like Terms $\qquad$ $+$ $\qquad$ $\rightarrow 4 x$ and $\qquad$ $\qquad$ $\rightarrow 3$ to simplify the expression. |
| -3x $-3 x$ |  |
| $6=x+3$ $\underline{-3}$ | Added $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow x$ to eliminate the term with the variable on one side of the equal sign. |
| $3=x$ |  |
| One Solution | Decided The number of solutions is $\qquad$ since the simplified equation is $x=$ $\qquad$ —. |

$\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

## Session 4: Guided Practice (Whole Group - Cont.)

| Write | Describe |
| :---: | :---: |
| 2. $-2 x+10=-2(x-5)$ $-2 x+10=-2(x+-5)$ $-2 x+10=-2 x+10$ $10=10$ <br> Infinitely Many Solutions | Changed to Addition $-2(x-5) \rightarrow-2($ $\qquad$ $+$ $\qquad$ _) to make it easier to combine like terms. <br> Multiplied $\qquad$ $\bullet$ $\qquad$ $\rightarrow-2 x$ and $\qquad$ - $\qquad$ $\rightarrow 10$ to eliminate the parentheses. <br> Added and Compared $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow 0$ 10 and 10 are $\qquad$ to eliminate the term with the variable on one side of the equal sign and check for equality. <br> Decided The number of solutions is $\qquad$ since the simplified equation is _. $\qquad$ |
| 3. $-2 x+10=-2(x+5)$ $\begin{aligned} & -2 x+10=-2 x+-10 \\ & \underline{2 x} 2 x \\ & 10 \neq-10 \end{aligned}$ <br> No Solutions | $\qquad$ $\qquad$ $\rightarrow-2 x$ and $\qquad$ $\qquad$ $\rightarrow-10$ <br> Added and Compared $\qquad$ $+$ $\qquad$ $\rightarrow 0$ and $\qquad$ $+$ $\qquad$ $\rightarrow 0$ 10 and -10 are $\qquad$ to eliminate the term with the variable on one side. <br> Decided The number of solutions is _, $\qquad$ since the simplified equation is $\qquad$ . |

Name $\qquad$ Date $\qquad$

Learning Target: I will determine the number of solutions to linear equations in one variable

Algebra 1 - Readiness Standard 2 - 8.EE.7a

## Session 4: Guided Practice (Pairs)

Directions: Solve each linear equation and find the number of solutions.


# Algebra 1 Quick Check - Form D 

Readiness Standard 2-8.EE.7a
Name $\qquad$ Date

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

| 1. $2 x+4=-2 x+-4$ <br> No Solutions One Solution Infinitely Many | 2. $6 x+2=3 x+14$ <br> No Solutions One Solution Infinitely Many |
| :---: | :---: |
| 3. $5 x+6=3 x+7+2 x$ <br> No Solutions One Solution Infinitely Many | 4. $3 x-4=3 x-4$ <br> No Solutions One Solution Infinitely Many |
| 5. $4 x+2=2(x+4)$ <br> No Solutions One Solution Infinitely Many | 6. $8 x+1=3(2 x+1)+2 x$ <br> No Solutions One Solution Infinitely Many |

## Algebra 1 Quick Check - Form E

Readiness Standard 2-8.EE.7a

Name $\qquad$ Date $\qquad$

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

$\qquad$ Date $\qquad$

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)


## Algebra 1 Quick Check - Form G

Readiness Standard 2-8.EE.7a

Name $\qquad$ Date $\qquad$

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)

$\qquad$ Date $\qquad$

Learning Target: I will find the number of solutions to linear equations in one variable.

Directions: Circle the number of solutions to each equation. (Work time: 5 minutes)


