8th Grade

Tier 2 Intervention Lessons

Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for 8.EE.7b: Solve multi-step linear equations

© OAISD, November 2018

Table of Contents

Session 1: Planning Guide ..... p. 4

Session 1: Re-engagement Lesson Resources ..... p. 5-10

Sessions 2 through 8: Planning Guide p.11

Sessions 2 through 8: Lesson Resources ..... p. 12-58

Independent Practice Game: "Solve 1-step Equations Match-up" ..... p. 59-63

Classroom Poster: Questions for Solving Word Problems ..... p. 64

Tier 1 Support Classroom Poster: Steps for Solving Word Problems ..... p. 65

IES Recommendations for Tier 2 and 3 intervention lessons:

2. Instructional materials for students receiving interventions should focus intensely on in-depth treatment of whole numbers in kindergarten through grade 5 and on rational numbers in grades 4 through 8. These materials should be selected by committee.	**Low**
3. Instruction during the intervention should be explicit and systematic. This includes providing models of proficient problem solving, verbalization of thought processes, guided practice, corrective feedback, and frequent cumulative review.	**Strong**
4. Interventions should include instruction on solving word problems that is based on common underlying structures.	**Strong**
5. Intervention materials should include opportunities for students to work with visual representations of mathematical ideas and interventionists should be proficient in the use of visual representations of mathematical ideas.	**Moderate**
6. Interventions at all grade levels should devote about 10 minutes in each session to building fluent retrieval of basic arithmetic facts.	**Moderate**
7. Monitor the progress of students receiving supplemental instruction and other students who are at risk.	**Low**
8. Include motivational strategies in tier 2 and tier 3 interventions.	**Low**

(Institute of Educational Sciences, Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools, 2009, p. 6)

Gradual release of responsibility model

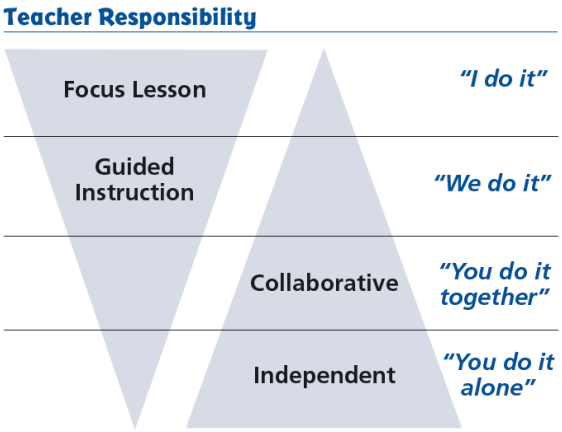


Figure 1

(Dr. Douglas Fisher, Effective Use of the Gradual Release of Responsibility Model)

Planning Guide: Session 1

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Recommended Actions	
Beginning *(15 min.)*	Review the readiness standard with the intervention group using the **Guided Review** o Introduce the learning target and why it is important for future learning o Read each question on the Guided Review and ask students to share what they remember from the previous school year.
Middle *(5 min.)*	➢ Ask students to reflect on their progress towards the learning target o What did I remember about the learning target? o What did I learn today about the learning target? o How confident do I feel about doing the learning target on my own?
End *(10 min.)*	➢ Assess each student's progress using **Quick Check – Form A** ➢ Guide students to self-correct their **Quick Check – Form A** ➢ Guide students to chart their progress by recording the date and Quick Check score in their **Growth Chart** ➢ Collect each student's Quick Check and Growth Chart
After	➢ Create sub-groups to differentiate the middle of sessions 2 through 8 o Group 1 – Include students who did not meet the learning goal o Group 2 – Include students who met or exceeded the learning goal

© OAISD, November 2018

8th Grade Fall Guided Review

Readiness Standard 6 - 7.EE.4a

Name_____ Date_____

Learning Target: I will solve multi-step equations for *x*.

1.

Solve the equation for *x*.

$$3x + 1 = 16$$

○ 4 ○ 5 ○ 6 ○ 45

2.

Solve the equation for *x*.

$$2(x + 4) = 14$$

○ 3 ○ 6 ○ 11 ○ 22

3.

Solve the equation for *x*.

$$3(x - 2) = 18$$

○ 24 ○ 8 ○ 6 ○ 4

© OAISD, November 2018

8th Grade Winter Guided Review

Readiness Standard 6 - 7.EE.4a

Name_____ Date_____

Learning Target: I will solve multi-step equations for *x*.

1.

Solve the equation for *x*.

$$2x + 3 = 19$$

○ 11 ○ 8 ○ 32 ○ 14

2.

Solve the equation for *x*.

$$3(x + 2) = 18$$

○ 8 ○ $\frac{16}{3}$ ○ 4 ○ 9

3.

Solve the equation for *x*.

$$2(x - 3) = 14$$

○ 20 ○ 4 ○ $\frac{17}{2}$ ○ 10

© OAISD, November 2018

8th Grade Spring Guided Review

Readiness Standard 6 - 7.EE.4a

Name_____ Date_____

Learning Target: I will solve multi-step equations for *x*.

1.

Solve the equation for *x*.

$$2x + 4 = 14$$

○ 9 ○ 20 ○ 5 ○ 8

2.

Solve the equation for *x*.

$$2(x + 3) = 14$$

○ 10 ○ 4 ○ 9 ○ $\frac{11}{2}$

3.

Solve the equation for *x*.

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

○ $\frac{14}{3}$ ○ 15 ○ 6 ○ 2

© OAISD, November 2018

Session 1: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I remember about solving equations with more than one step?

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form A

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $16 = 2x + 4$	**2.** $3 - 4x = 11$
3. $-5 + 3x = 10$	**4.** $2(x + 5) = 30$
5. $\frac{1}{4}(x - 3) = 20$	**6.** $\frac{2}{3}x + 6 = -14$

© OAISD, November 2018

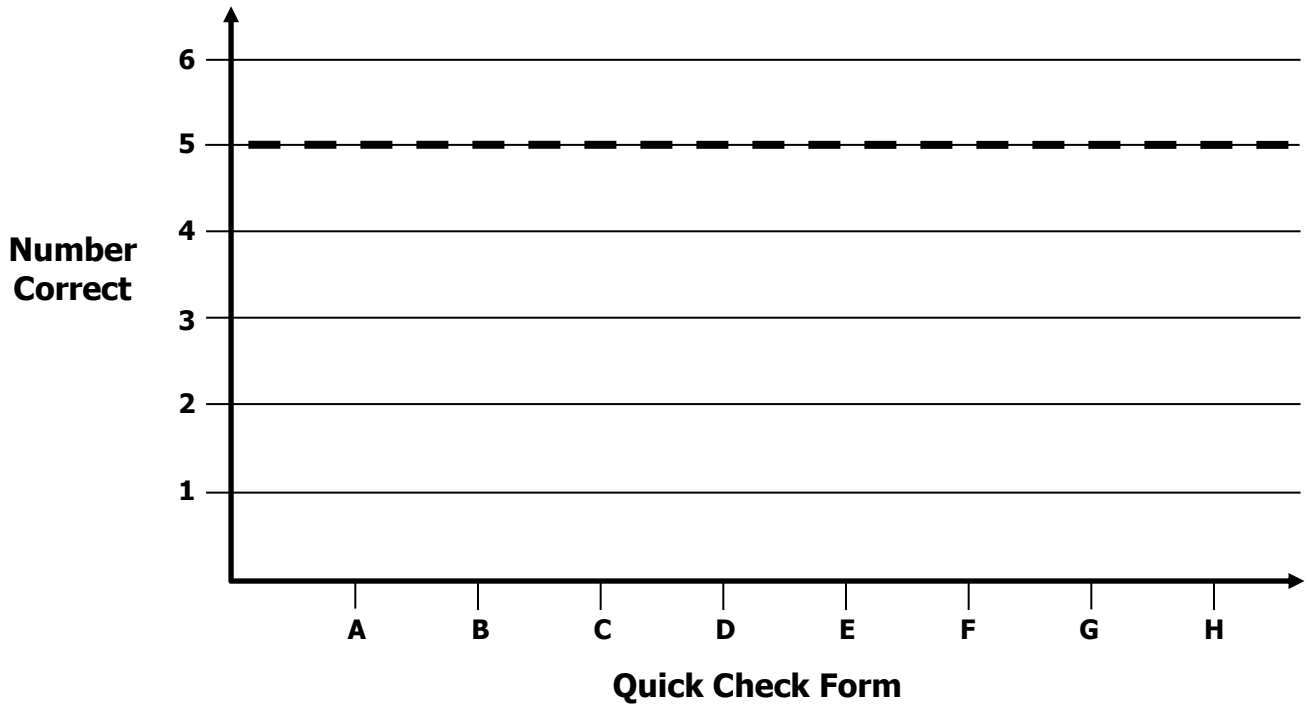
Growth Chart

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Goal: 5 out of 6 correct



Intervention	Date	Score
Guided Review		

© OAISD, November 2018

Planning Guide: Sessions 2 Through 8

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

<table>
<tr><th colspan="3">Recommended Actions</th></tr>
<tr><td>Beginning
(5 min.)</td><td colspan="2">➢ Review the learning target with the whole group and ask each student to set a goal.</td></tr>
<tr><td>Middle
(15 min.)</td><td>Group 1: Students who scored below the learning goal on the previous Quick Check.

➢ Model solving a word problem – “I do”
➢ Guided Practice – “We do”

Session 2: Solve 1-step equations (+ and x) with whole numbers using algebra tiles.
Session 3: Solve 1-step equations (+ and x) with whole numbers using drawings.
Session 4: Solve 1-step equations (x) with whole numbers and fractions using drawings.
Session 5: Solve 1-step equations (+ and x) with whole numbers and fractions using inverse operations.</td><td>Group 2: (Students who met the learning goal)

➢ Independent practice – “You do alone”

Activity 1: “Solve 1-step Equations Match-up”

(Look for additional activities in 6th grade core instruction resources.)</td></tr>
<tr><td>End
(10 min.)</td><td colspan="2">➢ Bring the students back together.
➢ Ask students to reflect on their progress towards the learning target
o What did I learn today about solving 1-step equations?
o How confident do you feel about solving 1-step equations on my own? (Thumbs up, down, or sideways)
➢ Assess each student’s progress using the next Quick Check form
➢ Guide students to self-correct their Quick Check
➢ Guide students to chart their progress in their Growth Chart
o If not using Delta Math lessons, record the activity in the table
➢ Collect each student’s Quick Check and Growth Chart</td></tr>
<tr><td>After</td><td colspan="2">➢ Regroup students to differentiate the middle of sessions 3 through 8
o Promote students who met the learning goal to group 2
o Exit students who met the learning goal for a third time
➢ Problem solve with a team to plan additional support for students who did not exit</td></tr>
</table>

© OAISD, November 2018

Session 2: Modeling (I Do)

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

The Affordable Taxi Company charges a flat fee of $1 per ride plus an additional $2 per mile. Dominik paid $9 for a ride from his home to the store. The equation $2x + 1 = 9$ can be used to calculate the number of miles Dominik travelled. How many miles did Dominik travel from his home to the store?

© OAISD, November 2018

Session 2: Modeling *(I Do – Visual Support)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

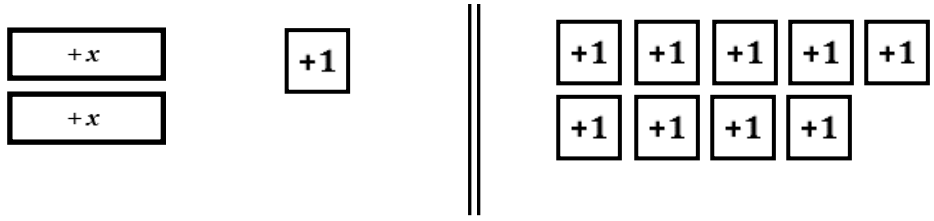
Readiness for solving multi-step linear equations

The Affordable Taxi Company charges a flat fee of $1 per ride plus an additional $2 per mile. Dominik paid $9 for a ride from his home to the store. The equation $2x + 1 = 9$ can be used to calculate the number of miles Dominik travelled. How many miles did Dominik travel from his home to the store?

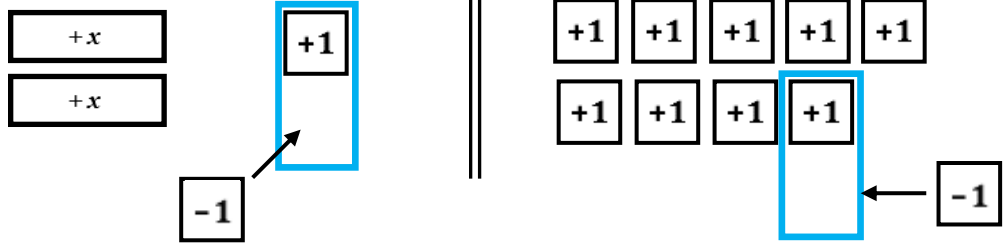
Dollars per Mile + Flat Fee per Ride = Total

$2x + 1 = 9$

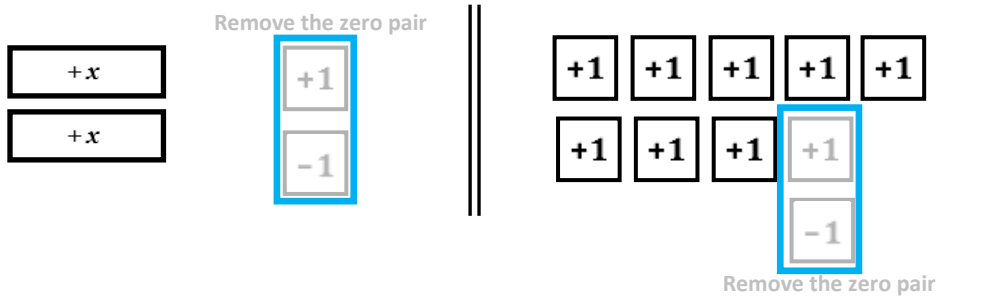
Step 1: Write and build the equation



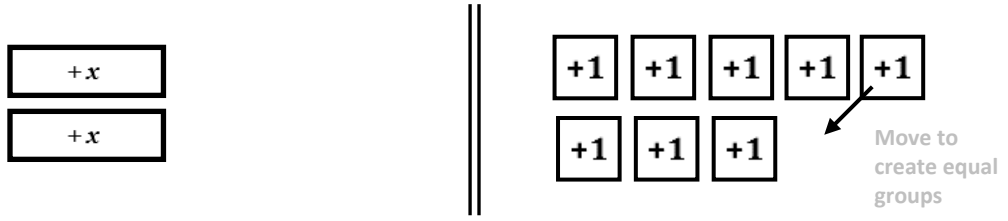
*Step 2: Create **zero pairs** to isolate the x tiles*



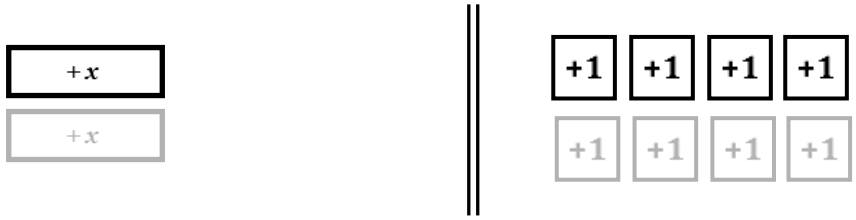
*Step 3: Remove the **zero pairs***



Step 4: Create Equal groups



Step 5: Find the value of each variable



© OAISD, November 2018

Session 2: Modeling *(I Do - Teacher Notes)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

The Affordable Taxi Company charges…

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

The problem is about Dominik's taxi ride.

Second, I need to determine what I need to find.

I need to find how many miles Dominik travelled.

Third, I need to determine what I know.

I know the taxi company charges a flat fee of 1 dollar per ride plus an additional 2 dollars per mile and Dominik paid 9 dollars for the ride.
(Write "Dollars per Mile + Flat Fee per Ride = Total".)

I also know this situation can be modeled by the equation $2x + 1 = 9$. (Write "$2x + 1 = 9$" below the headings.)

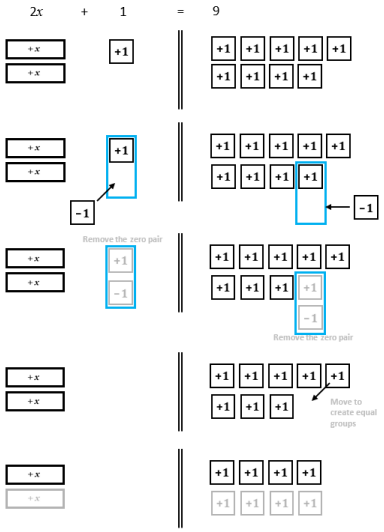
Fourth, I need to figure out what I can try.

I will use algebra tiles to represent this situation.

I need to use 2 "+x tiles" and 1 "+1 tile" to represent the expression $2x + 1$.
(Place 2 "+x tiles" and 1 "+1 tile" below the equation…*see Step 1 on the Visual Support page*.)

Next, I need to place 9 "+1 tiles" to represent the total.
(Place 9 "+x tiles" below the total in the equation…*see Step 1*.)

Since I need to find out how much each x equals, I can isolate this variable by adding a "-1 tile" to create a zero pair on the left side of the equal sign. I also have to add a "-1 tile" to the right side of the equal sign so that both sides remain equal to each other.
(Place 1 "-1 tile" on both sides of the equal sign…*see Step 2*.)



Now, I can remove both zero pairs because each pair has a value of zero.
(Remove each zero pair from both sides of the equal sign…*see Step 3*.)

I see 2 "+x –tiles" equal to 8 "+1 tiles"…to find the value of each "+x –tile", it helps to separate them into 2 equal groups. (Move a "+1 tile" on the right to create two equal groups…*see Step 4*.)

This shows that 1 "+x –tile" is equal to 4 "+1 tiles"…which means $x = 4$.
(Cover the bottom group of x and +1 tiles to show that x equals 4.)

Last, I need to make sure that my answer makes sense.

I found that Dominik travelled 4 miles to the store. This makes sense because I modeled the situation using algebra tiles, zero pairs and creating equal groups to find the value of x.

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 2: Guided Practice (We Do)

Materials:

- Algebra Tiles (20 +1's, 10 +x's, 20 -1's, 10 -x's per pair of students taking turns using the tiles.)
- Equation mat (1 per student)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, use algebra tiles to find the solution.

1. $3x + 4 = 10$	**2.** $3x - 4 = 8$
3. $-13 = 4x + 3$	**4.** $4x - 1 = -13$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 2: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to solve each equation using algebra tiles.

5. $2x + 4 = 10$	**6.** $2x + 4 = -10$
7. $3x - 1 = -13$	**8.** $3x - 1 = 14$
9. $4x + 2 = -10$	**10.** $4x - 2 = -10$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step

8th Grade - RS 6 - 7.EE.4a

Session 2: Guided Practice (We Do – Teacher Notes)

Materials:

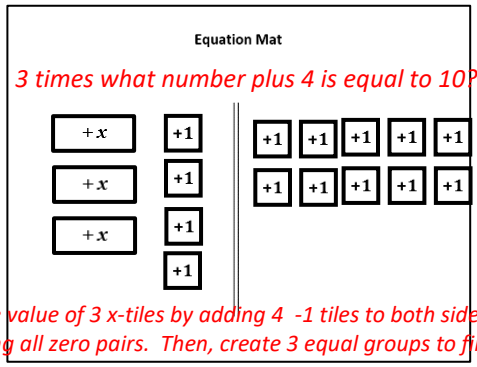
- Algebra Tiles (20 +1's, 10 +x's, 20 -1's, 10 -x's per pair of students taking turns using the tiles.)
- Equation mat (1 per student)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, use algebra tiles to find the solution.

1. *Say and build the equation.*

$3x + 4 = 10$

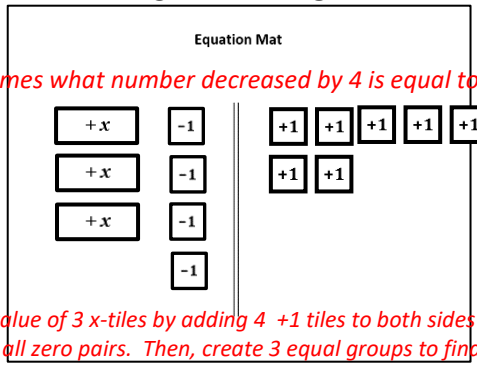


3 times what number plus 4 is equal to 10?

Find the value of 3 x-tiles by adding 4 -1 tiles to both sides and removing all zero pairs. Then, create 3 equal groups to find x = 2.

2. *Say and build the equation.*

$3x - 4 = 8$

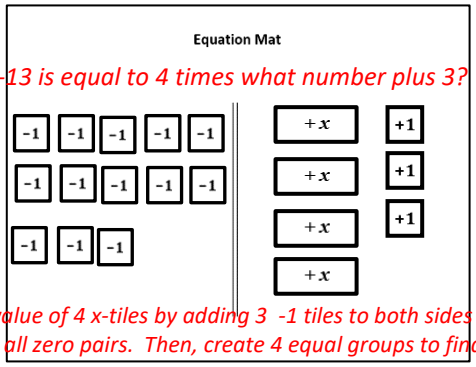


3 times what number decreased by 4 is equal to 8?

Find the value of 3 x-tiles by adding 4 +1 tiles to both sides and removing all zero pairs. Then, create 3 equal groups to find x = 4.

3. *Say and build the equation.*

$-13 = 4x + 3$

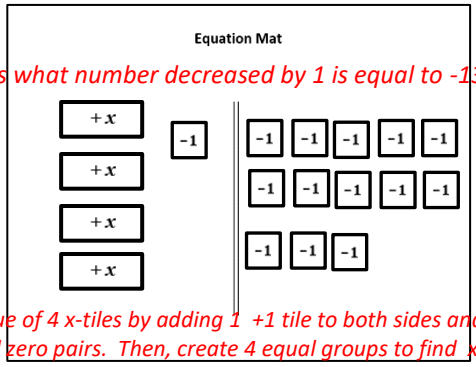


-13 is equal to 4 times what number plus 3?

Find the value of 4 x-tiles by adding 3 -1 tiles to both sides and removing all zero pairs. Then, create 4 equal groups to find x = -4.

4. *Say and build the equation.*

$4x - 1 = -13$



4 times what number decreased by 1 is equal to -13?

Find the value of 4 x-tiles by adding 1 +1 tile to both sides and removing all zero pairs. Then, create 4 equal groups to find x = -3.

© OAISD, November 2018

Algebra Tiles (2 sets of positive tiles)

8th Grade - Readiness Standards 3, 4, 5 and 6 – 7.EE.1a, 7.EE.1b, 7.EE.1c, 7.EE.4a

Directions: Provide each student one set of positive and negative tiles.

Note: $+x^2$ tiles and $-x^2$ tiles are included, but will not be used in 7.EE.4a

+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
$+x^2$		$+x^2$			$+x^2$	$+x^2$	$+x^2$	$+x^2$
$+x^2$		$+x^2$			$+x^2$	$+x^2$	$+x^2$	$+x^2$

+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
+1	+1	+1	+1	+1	$+x$	$+x$	$+x$	$+x$
$+x^2$		$+x^2$			$+x^2$	$+x^2$	$+x^2$	$+x^2$
$+x^2$		$+x^2$			$+x^2$	$+x^2$	$+x^2$	$+x^2$

© OAISD, November 2018

Algebra Tiles (2 sets of negative tiles)

8th Grade - Readiness Standards 3, 4, 5 and 6 – 7.EE.1a, 7.EE.1b, 7.EE.1c, 7.EE.4a

Directions: Provide each student one set of positive and negative tiles.

Note: $+x^2$ tiles and $-x^2$ tiles are included, but will not be used in 7.EE.4a

-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
$-x^2$		$-x^2$		$-x^2$	$-x^2$	$-x^2$	$-x^2$	
$-x^2$		$-x^2$		$-x^2$	$-x^2$	$-x^2$	$-x^2$	

-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
-1	-1	-1	-1	-1	$-x$	$-x$	$-x$	$-x$
$-x^2$		$-x^2$		$-x^2$	$-x^2$	$-x^2$	$-x^2$	
$-x^2$		$-x^2$		$-x^2$	$-x^2$	$-x^2$	$-x^2$	

© OAISD, November 2018

Modeling & Guided Practice Cards

8th Grade - Readiness Standard 6 - 7.EE.4a

Use for Problem 1 $3x + 4 = 10$	Use for Problem 2 $3x - 4 = 8$
Use for Problem 3 $-13 = 4x + 3$	Use for Problem 4 $4x - 1 = -13$
Use for Problem 5 $2x + 4 = 10$	Use for Problem 6 $2x + 4 = -10$
Use for Problem 7 $3x - 1 = -13$	Use for Problem 8 $3x - 1 = 14$
Use for Problem 9 $4x + 2 = -10$	Use for Problem 10 $4x - 2 = -10$
Use for Modelling $2x + 1 = 9$	

© OAISD, November 2018

Session 2: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form B

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $31 = 5x + 6$	**2.** $2 - 3x = 11$
3. $-10 + 5x = 40$	**4.** $2(x + 9) = 24$
5. $\frac{1}{5}(x - 2) = 8$	**6.** $\frac{3}{4}x + 10 = -14$

© OAISD, November 2018

Session 3: Modeling (I Do)

8th Grade – Readiness Standard 6 – 7.EE.4a

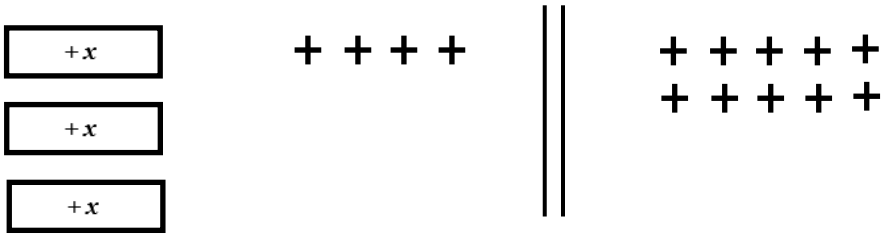
Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Aubrey bought a quesadilla and 3 donuts for $10. If she paid $4 for the quesadilla, the equation $3x + 4 = 10$ can be used to represent the total amount she paid for the donuts, the cost of the quesadilla and the total that she paid. How much did each donut cost?

3 Donuts and a $4 Quesadilla = Total

$3x + 4 = 10$



Session 3: Modeling *(I Do – Visual Support)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

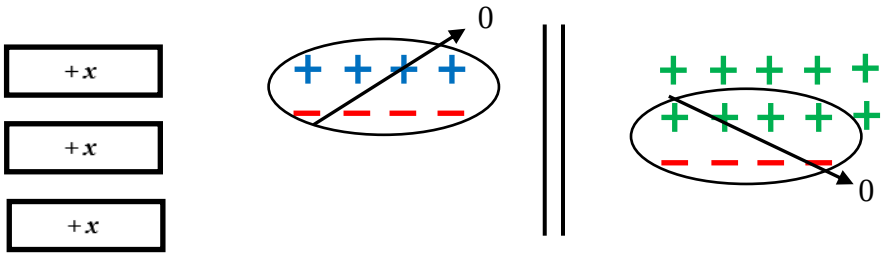
Readiness for solving multi-step linear equations

Aubrey bought a quesadilla and 3 donuts for $10. If she paid $4 for the quesadilla, the equation $3x + 4 = 10$ can be used to represent the total amount she paid for the donuts, the cost of the quesadilla and the total that she paid. How much did each donut cost?

3 Donuts and a $4 Quesadilla = Total

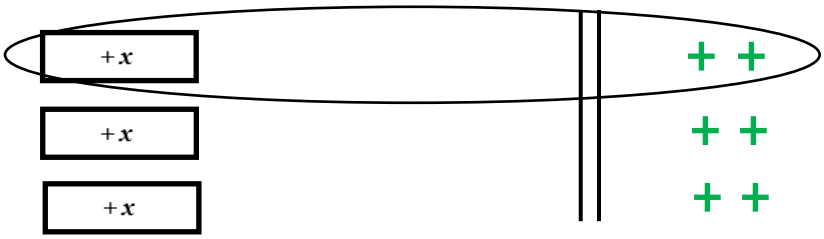
$3x + 4 = 10$

Each x represents the cost of one donut



$3x = 6$

x is equal to $2



$x = 2$

Note: Color-coding is provided to help the interventionist make connections between the numbers, symbols and pictures. It may also help students who struggle to make similar connections.

© OAISD, November 2018

Session 3: Modeling *(I Do - Teacher Notes)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step **Readiness** for solving multi-step linear equations

Aubrey bought a quesadilla…

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

The problem is about Aubrey buying lunch and dessert for herself and 2 friends.

Second, I need to determine what I need to find.

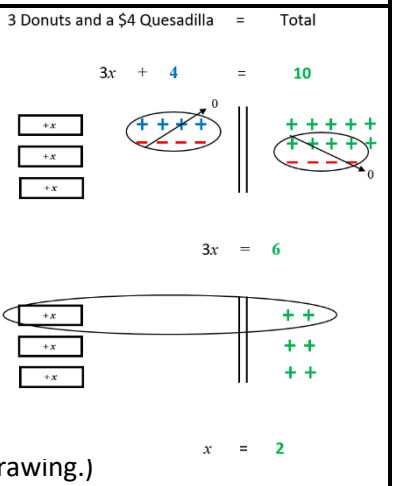
I need to find how much Aubrey paid for each donut.

Third, I need to determine what I know.

I know Aubrey bought a quesadilla and 3 donuts and she paid $4 for the quesadilla and $10 total.
(Point to the heading "3 Donuts and a $4 Quesadilla = Total".)

I also know that this situation can be modeled by the equation $3x + 4 = 10$.
(Point to the equation.)

Fourth, I need to figure out what I can try.



I am going to complete the math drawing of algebra tiles to model the situation.
(Point to the drawing of both expressions.)

I can use zero pairs to eliminate 4 positives from each expression to find the value of the 3 xs.
(Draw 4 "–" signs below the 4 "+" signs on both sides of the equality lines.)

Each zero pair equals zero…so I will show that they cancel each other with a loop and an arrow pointing to Zero.
(Draw a loop around each set of 4 zero pairs and draw an arrow through each group pointing to "0".)

This shows that the 3 x's are equal to 6 positives. (Write "$3x = 6$" below the first drawing.)

To find the value of each "+x tile"…I will re-draw the 3 "+x tiles" and divide the 6 positives into 3 equal groups.
(Draw the "plus signs" by alternating between each "+x tile" as you count to 6.)

The math drawing shows that each x is equal to 2 since there are 2 "plus signs" in each group.
(Draw a loop around the top "+x tile" and its corresponding "plus signs".)

The drawing shows the solution to $3x + 4 = 10$ is 2. (Write the solution "x = 2".)

Last, I need to make sure that my answer makes sense.

I found that Aubrey paid $2 for each donut. This makes sense because I modeled the situation using a math drawing to represent the given equation and created zero pairs to help find the value of each +x-tile.

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

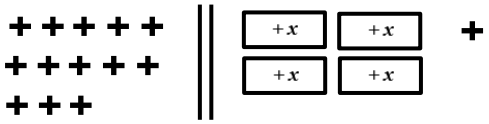
Session 3: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

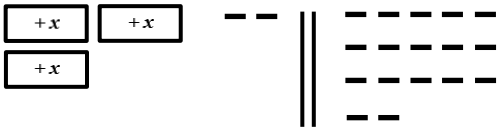
1.

$13 = 4x + 1$



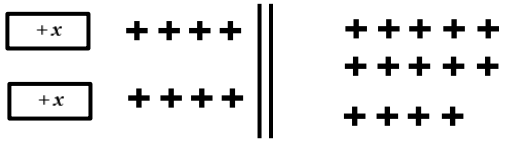
2.

$3x - 2 = -17$



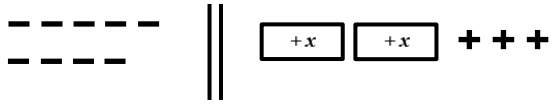
3.

$2(x + 4) = 14$



4.

$-9 = 2x + 3$



© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

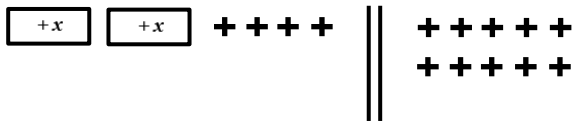
Session 3: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to solve each equation.

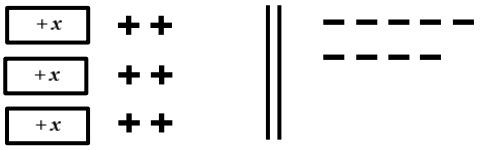
5.

$2x + 4 = 10$



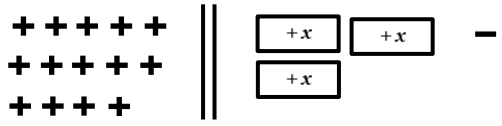
6.

$3(x + 2) = -9$



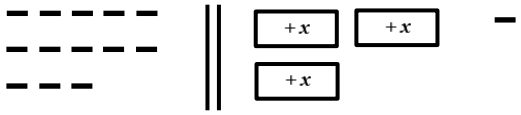
7.

$14 = 3x - 1$



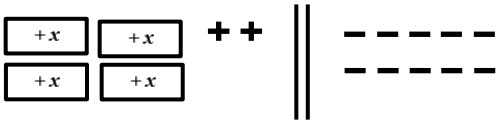
8.

$-13 = 3x - 1$



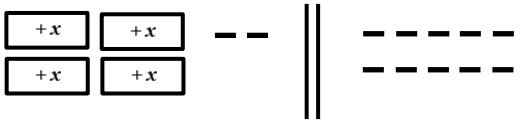
9.

$4x + 2 = -10$



10.

$4x - 2 = -10$



© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step

8th Grade - RS 6 - 7.EE.4a

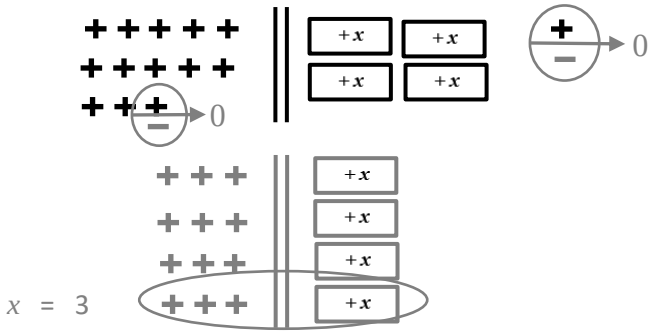
Session 3: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

1. *13 is equal to 4 times what number plus 1?*

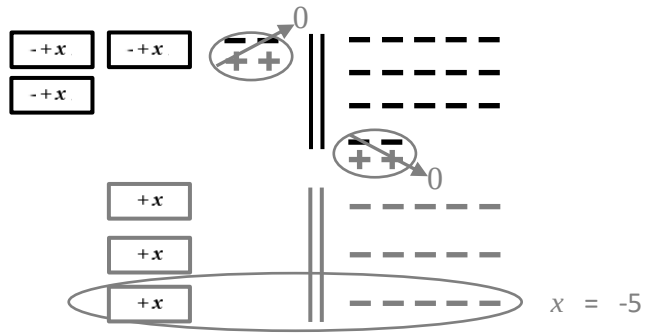
$13 = 4x + 1$



Find the value of the x's by creating 1 zero pair on both sides. Then, divide the 12 remaining positives into 4 equal groups.

2. *3 times what number minus 2 is equal to -17?*

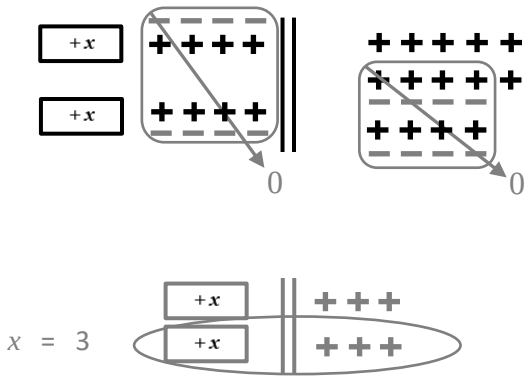
$3x - 2 = -17$



Find the value of the x's by creating 2 zero pairs on both sides. Then, divide the 15 remaining negatives into 3 equal groups.

3. *2 groups of what number plus 4 is equal to 14?*

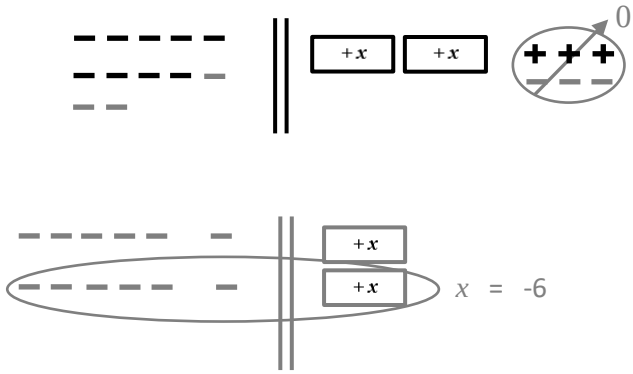
$2(x + 4) = 14$



Find the value of the 2 x's by creating 8 zero pairs on both sides. Then, divide the 6 remaining positives into 2 equal groups.

4. *-9 is equal to 2 times what number plus 3?*

$-9 = 2x + 3$



Find the value of the x's by creating 3 zero pairs on both sides. Then, divide the 12 remaining negatives into 2 equal groups.

© OAISD, November 2018

Session 3: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form C

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $14 = 4x + 2$	**2.** $5 - 2x = 19$
3. $-7 + 4x = 21$	**4.** $3(x + 4) = 24$
5. $\frac{1}{3}(x - 6) = 7$	**6.** $\frac{4}{5}x + 3 = -17$

© OAISD, November 2018

Session 4: Modeling (I Do)

8th Grade – Readiness Standard 6 – 7.EE.4a

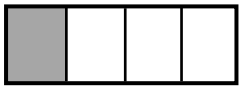
Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

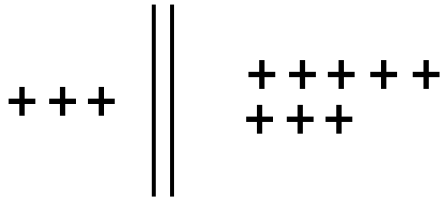
Baily receives a monthly allowance for doing additional chores around the house. She used one-fourth of her monthly allowance and an additional $3 from the previous month to pay for a Red Wing hockey T-shirt. If Baily bought the T-shirt cost for $8, the equation $\frac{1}{4}x + 3 = 8$ can be used to find his normal allowance. How much is Baily's monthly allowance?

$\frac{1}{4}$ of Allowance + $3 = Cost of T-shirt

$\frac{1}{4}x + 3 = 8$



+*x-tile*



Session 4: **Modeling** (I Do – Visual Support)

8th Grade – Readiness Standard 6 – 7.EE.4a

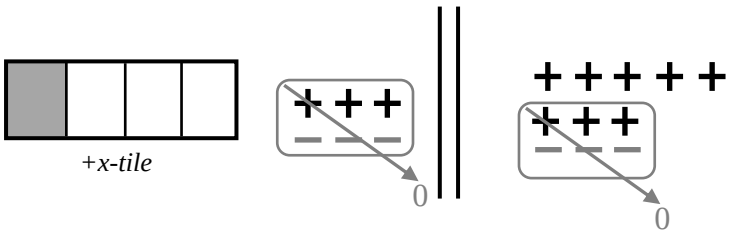
Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

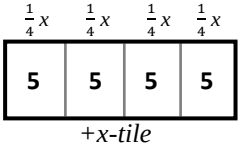
Baily receives a monthly allowance for doing additional chores around the house. She used one-fourth of her monthly allowance and an additional $3 from the previous month to pay for a Red Wing hockey T-shirt. If Baily bought the T-shirt cost for $8, the equation $\frac{1}{4}x + 3 = 8$ can be used to find his normal allowance. How much is Baily's monthly allowance?

$\frac{1}{4}$ of Allowance + $3 = Cost of T-shirt

$\frac{1}{4}x + 3 = 8$



$\frac{1}{4}x = 5$



$x = 20$

© OAISD, November 2018

Session 4: Modeling *(I Do - Teacher Notes)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step **Readiness** for solving multi-step linear equations

Baily receives a monthly allowance for doing additional chores around the house…

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about. The problem is about Baily's monthly allowance.

Second, I need to determine what I need to find. I need to find how much money Baily normally gets.

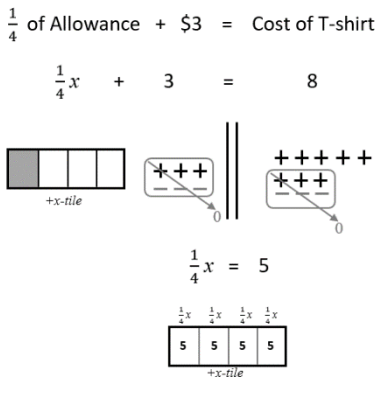
Third, I need to determine what I know.

I know she used one-fourth of her monthly allowance and an additional $3 from the previous month to pay $8 for a Red Wings T-shirt. (Point to the heading "$\frac{1}{4}$ of Allowance + $3 = Cost of T-shirt".)

I also know that this situation can be modeled by the equation $\frac{1}{4}x + 3 = 8$. (Point to the equation.)

Fourth, I need to figure out what I can try.

I am going to complete the math drawing to model the situation.
(Point to the drawing of both expressions.)



Her normal monthly allowance is equal to the value of the whole x.
(Point to each of the four sections of the "+x tile".)

I can use zero pairs to eliminate the 3 positives from each expression to find the value of the 1 fourth of x.
(Draw 3 "–" signs below the 3 "+" signs on both sides of the equality lines.)

Each zero pair equals zero…so I will show that they cancel each other with a loop and an arrow pointing to zero.
(Draw a loop around each set of 3 zero pairs and draw an arrow through each group pointing to "0".)

This shows that 1 fourth of x is equal to 5 positives.
(Write "$\frac{1}{4}x = 5$" below the original drawing.)

In order to make it easier to find the whole, I am going to redraw the "+x tile" with 4 equal parts.
(Draw an "+x tile" separated into fourths below the equation.)

Since each part is one-quarter of the whole, I am going to write "$\frac{1}{4}x$ " above each part.
(Write "$\frac{1}{4}x$" above each part of the "+x tile".)

The original drawing shows that "$\frac{1}{4}x$" is equal to 5, so I am going to write "5" in each of the 4 sections.
(Point to the remaining 5 "plus signs" and write "5" in the 4 sections of the "+x tile".)

Now I can see that the whole value of x is equal to 20.
(Point to the 4 groups of 5 and write $x = 5 \cdot 4 = 20$ below the math drawing.)

Last, I need to make sure that my answer makes sense.

I found that Baily normally gets $20 for allowance. This makes sense because I modeled the situation using algebra tiles to represent the given equation and used zero pairs to find the value of each fourth of the "x".

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

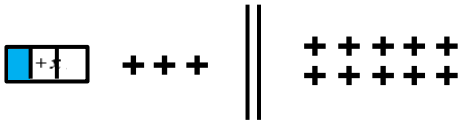
Session 4: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

1. *"1 third of what number plus 3 is equal to 10?"*

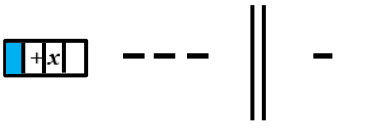
$\frac{1}{3}x + 3 = 10$



+x-tile

2.

$\frac{1}{4}x - 3 = -1$



+x-tile

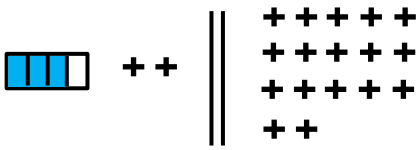
3.

$1 = \frac{2}{5}x - 5$

+x-tile

4.

$\frac{3}{4}x + 2 = 17$



+x-tile

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

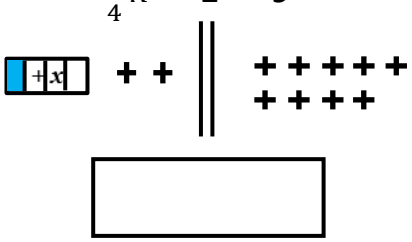
Session 4: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to solve each 1-step equation.

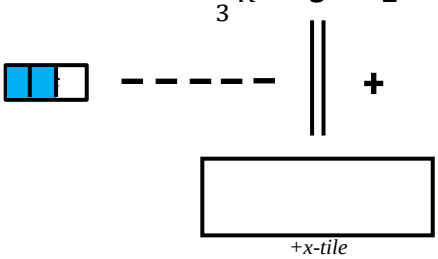
5. *"1 fourth of what number plus 2 is equal to 9?"*

$\frac{1}{4}x + 2 = 9$



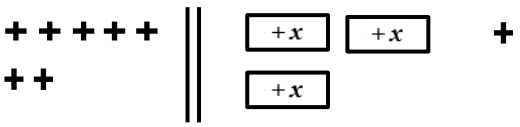
6.

$\frac{2}{3}x - 5 = 1$



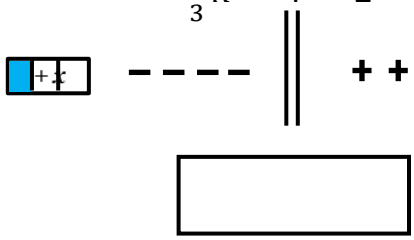
7.

$7 = 3x + 1$



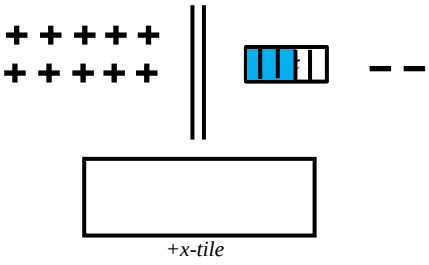
8.

$\frac{1}{3}x - 4 = 2$



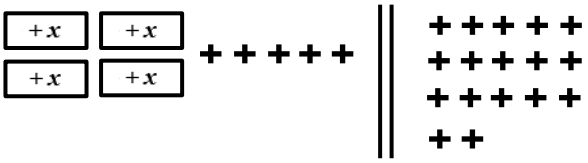
9.

$10 = \frac{3}{5}x - 2$



10.

$4x + 5 = 17$



© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step

8th Grade - RS 6 - 7.EE.4a

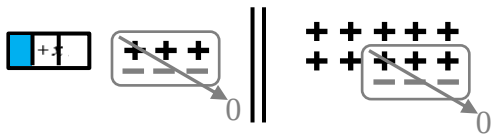
Session 4: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

1. *1 third of what number plus 3 is equal to 10?*

$\frac{1}{3}x + 3 = 10$



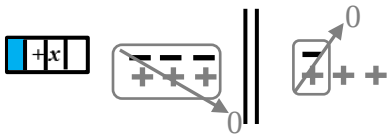
7	7	7

+x-tile

$\frac{1}{3}x = 7 \rightarrow x = 7 \cdot 3 = 21$

2. *1 fourth of what number minus 3 is equal to -1?*

$\frac{1}{4}x - 3 = -1$



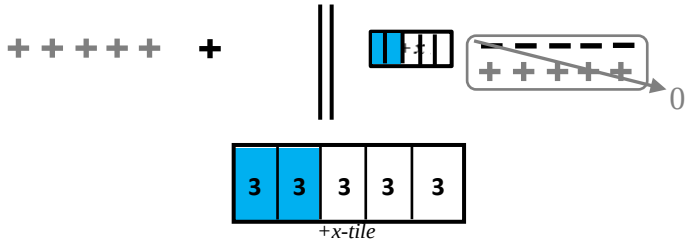
2	2	2	2

+x-tile

$\frac{1}{4}x = 2 \rightarrow x = 2 \cdot 4 = 8$

3. *1 is equal to 2 fifths of what number minus 5?*

$1 = \frac{2}{5}x - 5$



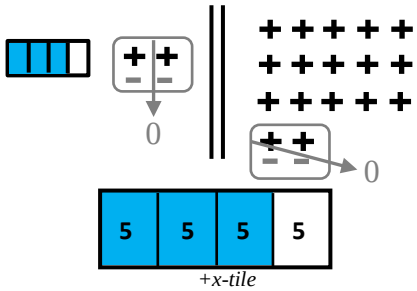
3	3	3	3	3

+x-tile

$6 = \frac{2}{5}x \rightarrow 3 = \frac{1}{5}x \rightarrow x = 3 \cdot 5 = 15$

4. *3 fourths of what number plus 2 is equal to 17?*

$\frac{3}{4}x + 2 = 17$



5	5	5	5

+x-tile

$\frac{3}{4}x = 15 \rightarrow \frac{1}{4}x = 5 \rightarrow x = 5 \cdot 4 = 20$

© OAISD, November 2018

Session 4: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form D

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $20 = 6x + 8$	**2.** $7 - 5x = 32$
3. $-9 + 8x = 15$	**4.** $4(x + 2) = 28$
5. $\frac{1}{2}(x - 4) = 10$	**6.** $\frac{3}{5}x + 5 = -25$

© OAISD, November 2018

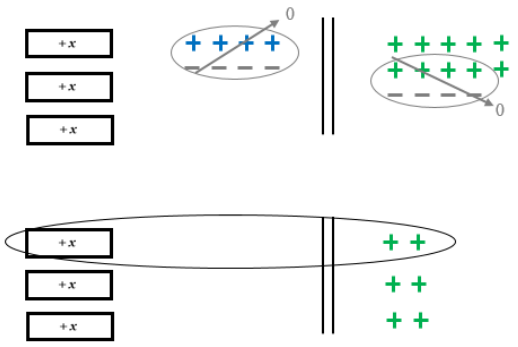
Session 5: Modeling (I Do)

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Analyze the math drawing solution to understand why x = 2. Then describe each step using numbers, symbols and words.

Math Drawing	Numbers and Symbols	Words
	$3x + 4 = 10$ $3x = 6$ $x = 2$	

© OAISD, November 2018

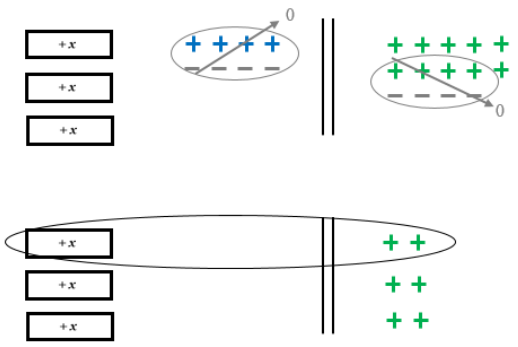
Session 5: Modeling (I Do – Visual Support)

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Analyze the math drawing solution to understand why x = 2. Then describe each step using numbers, symbols and words.

Math Drawing	Algebraic Solution	Explain Each Step
	$3x + 4 = 10$ $\quad -4 \quad -4$ $\frac{3x}{3} = \frac{6}{3}$ $x = 2$	Add -4 to both sides to find the value of 3 x's. Divide both sides by 3 to find the value of each x.

Session 5: Modeling *(I Do - Teacher Notes)*

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Analyze the math drawing solution to understand why x = 2. Then describe each step using numbers, symbols and words.

I am going to think aloud to model solving this problem.

Your job is to watch, listen, think and ask questions.

First, it is important to know what the problem is about.

The problem is about describing how to find the solution to an equation.

Second, I need to determine what I need to find.

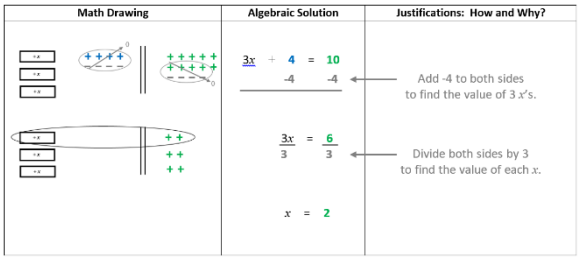
I need to analyze the math drawing to describe each step using numbers, symbols and words.

Third, I need to determine what I know.

I know there is a math drawing to help me understand each step.

Fourth, I need to figure out what I can try.

I am going to remember how we solved equations using algebra tiles and math drawings.



I see the original equation, $3x + 4 = 10$.
(Point to the equation in the drawing)

And 4 negative signs being added to both sides of the equation.
(Write "-4" under the original equation on both sides, draw a line below, draw an arrow and write "Add -4 to both sides" in the justification column.)

I see 3 x's equal 6. And the 6 plus signs were divided into 3 groups...
(Write "$\overline{3}$" under the $3x$ and 6, draw an arrow and write "Divide both sides by 3" in the justification column.)

The second drawing and algebraic solution show the value of each x equals 2.
(Point to the loop in the drawing and "$x = 2$". Then write "to find the value of each x" in the justification column)

Last, I need to make sure that my answer makes sense.

This makes sense because the math drawing and algebraic solution show that $x = 2$.

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 5: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase to understand the equality. Then, show each step using numbers and symbols to find the solution.

1. $19 = 4x - 1$	**2.** $2(x + 4) = 14$	**3.** $\frac{2}{3}x + 4 = 10$

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 5: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to show each step using numbers and symbols to find the solution.

4. $2x + 4 = 10$	**5.** $3(x + 2) = -9$	**6.** $-13 = 3x - 1$
7. $\frac{1}{4}x + 2 = 9$	**8.** $\frac{2}{3}x - 5 = 1$	**9.** $1 = \frac{2}{5}x - 5$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step

8th Grade - RS 6 - 7.EE.4a

Session 5: Guided Practice (We Do – Teacher Notes)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase to understand the equality. Then, show each step using numbers and symbols to find the solution.

19 is equal to 4 groups of what number minus 1?	*2 groups of the quantity of what number plus 4 is equal to 14?*	*2 thirds of what number plus 4 is equal to 10?*
1. $19 = 4x - 1$ $19 = 4x + -1$ $+1 \quad +1$ $\frac{20}{4} = \frac{4x}{4}$ $5 = x$	**2.** $2(x + 4) = 14$ $2x + 8 = 14$ $-8 \quad -8$ $\frac{2x}{2} = \frac{6}{2}$	**3.** $\frac{2}{3}x + 4 = 10$ $-4 \quad -4$ $\frac{2}{3}x = 6$ $\div \frac{2}{3} \quad \div \frac{2}{3}$ $1 \cdot x = \cancel{6}^{\cdot 3} \cdot \frac{3}{\cancel{2}} = 9$

Seeing Structure:

#1…When $4x = 20$, we divided both sides by 4 to find the value of each x.

#2…When $2x = 6$, we divided both sides by 2 to find the value of each x.

#3…When $\frac{2}{3}x = 6$, we divided both sides by $\frac{2}{3}$ to find the value of each x.

Note:
We always divide by the coefficient in front of the variable because the coefficient is the number of equal groups

And, to divide by a fraction, we can multiply by its reciprocal. (See 7th Grade - RS 1 - 6.NS.1 - Session 4)

Or, remember from the previous session x can be found in 2 steps…

$$\frac{2}{3}x = 6 \rightarrow \frac{1}{3}x = 3 \rightarrow x = 3 \cdot 3 = 9$$

© OAISD, November 2018

Session 5: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form E

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $16 = 2x + 4$	**2.** $3 - 4x = 11$
3. $-5 + 3x = 10$	**4.** $2(x + 5) = 30$
5. $\frac{1}{4}(x - 3) = 20$	**6.** $\frac{2}{3}x + 6 = -14$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

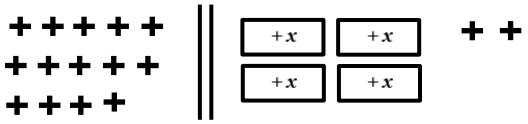
Session 6: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

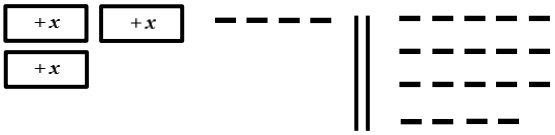
1.

$14 = 4x + 2$



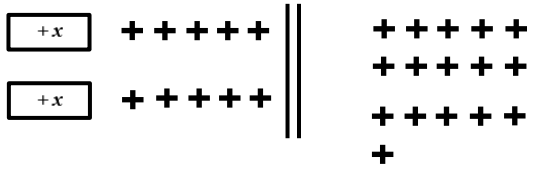
2.

$3x - 4 = -19$



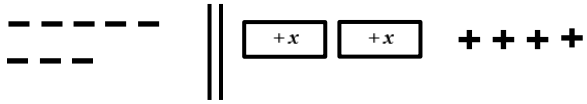
3.

$2(x + 5) = 16$



4.

$-8 = 2x + 4$



Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

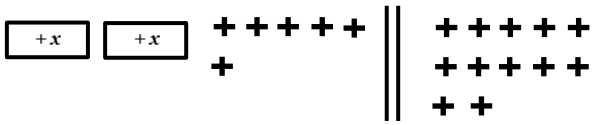
Session 6: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to solve each equation.

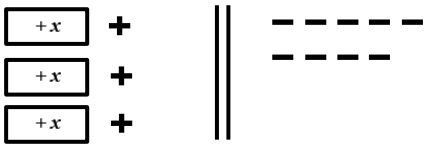
5.

$2x + 6 = 12$



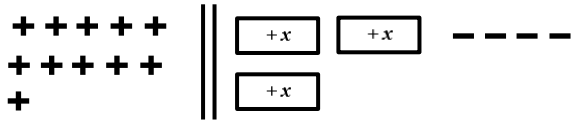
6.

$3(x + 1) = -9$



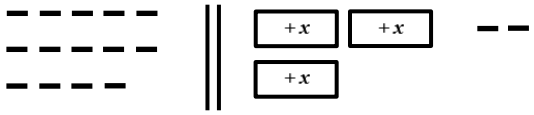
7.

$11 = 3x - 4$



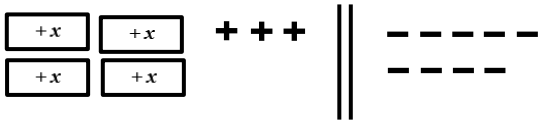
8.

$-14 = 3x - 2$



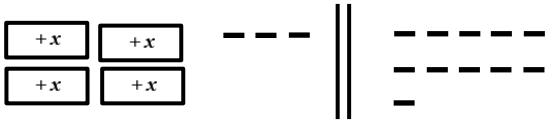
9.

$4x + 3 = -9$



10.

$4x - 3 = -11$



© OAISD, November 2018

Session 6: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form F

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $31 = 5x + 6$	**2.** $2 - 3x = 11$
3. $-10 + 5x = 40$	**4.** $2(x + 9) = 24$
5. $\frac{1}{5}(x - 2) = 8$	**6.** $\frac{3}{4}x + 10 = -14$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

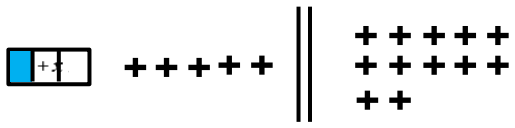
Session 7: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase with meaning. Then, complete the math drawing to find the solution.

1. *"1 third of what number plus 5 is equal to 12?"*

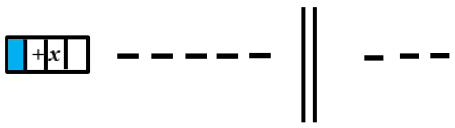
$\frac{1}{3}x + 5 = 12$



+x-tile

2.

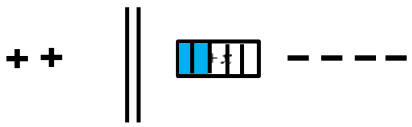
$\frac{1}{4}x - 5 = -3$



+x-tile

3.

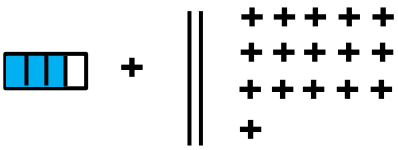
$2 = \frac{2}{5}x - 4$



+x-tile

4.

$\frac{3}{4}x + 1 = 16$



+x-tile

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

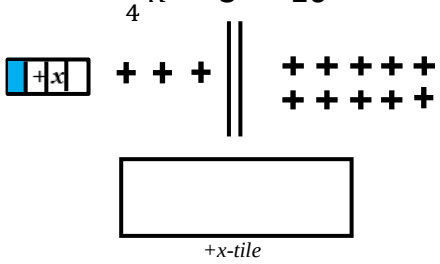
Session 7: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to solve each 1-step equation.

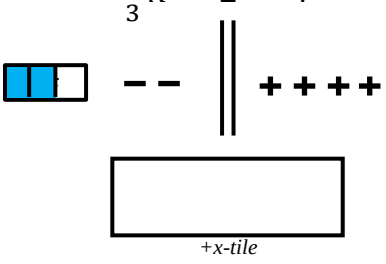
5. *"1 fourth of what number plus 2 is equal to 9?"*

$\frac{1}{4}x + 3 = 10$



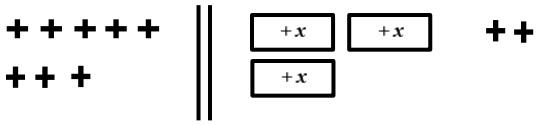
6.

$\frac{2}{3}x - 2 = 4$



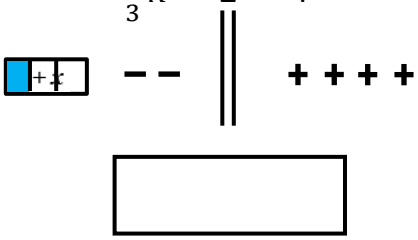
7.

$8 = 3x + 2$



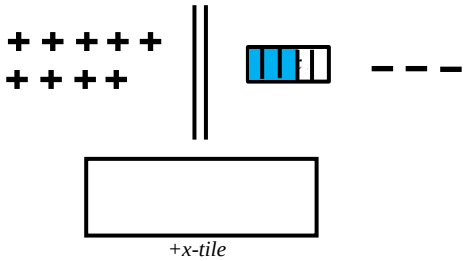
8.

$\frac{1}{3}x - 2 = 4$



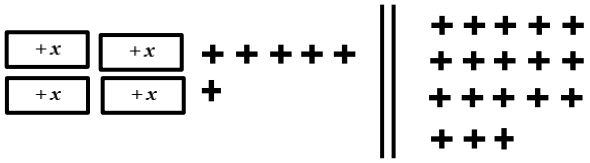
9.

$9 = \frac{3}{5}x - 3$



10.

$4x + 6 = 18$



© OAISD, November 2018

Session 7: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form G

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $14 = 4x + 2$	**2.** $5 - 2x = 19$
3. $-7 + 4x = 21$	**4.** $3(x + 4) = 24$
5. $\frac{1}{3}(x - 6) = 7$	**6.** $\frac{4}{5}x + 3 = -17$

© OAISD, November 2018

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 8: Guided Practice (We Do)

We Do Together: (Teacher Actions)

- Translate the equation into a phrase to understand the equality. Then, show each step using numbers and symbols to find the solution.

1. $18 = 4x - 2$	**2.** $2(x + 4) = 16$	**3.** $\frac{2}{3}x + 6 = 12$

Name _____ Date _____

Learning Target: I will solve equations with more than one step 8th Grade - RS 6 - 7.EE.4a

Session 8: Guided Practice (We Do - Continued)

You Do Together: (As a class, or in small groups)

- Students take turns leading to show each step using numbers and symbols to find the solution.

4. $2x + 3 = 9$	**5.** $3(x + 2) = -6$	**6.** $-18 = 3x - 6$
7. $\frac{1}{4}x + 3 = 10$	**8.** $\frac{2}{3}x - 8 = -2$	**9.** $1 = \frac{2}{5}x - 13$

© OAISD, November 2018

Session 8: Self-Reflection

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Briefly discuss student responses

- What did I learn today about solving equations with more than one step?

- How confident do I feel about solving equations with more than one step on my own? *(Thumbs up, down, or sideways)*

© OAISD, November 2018

Quick Check - Form H

8th Grade – Readiness Standard 6 – 7.EE.4a

Name_____ Date_____

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

Directions: Solve each equation for *x*. (Work time: 4 minutes)

1. $20 = 6x + 8$	**2.** $7 - 5x = 32$
3. $-9 + 8x = 15$	**4.** $4(x + 2) = 28$
5. $\frac{1}{2}(x - 4) = 10$	**6.** $\frac{3}{5}x + 5 = -25$

© OAISD, November 2018

Independent Practice (You Do)

8th Grade – Readiness Standard 6 – 7.EE.4a

Learning Target: I will solve equations with more than one step

Readiness for solving multi-step linear equations

Title of Game: Play "**Solve Multi-step Equations Match-up**!"

Number of Players: 2

Objective: To match all of your **"Problem"** cards to the equivalent **"Answer"** cards.

Materials:

- 1 set of **Problem** and **Answer** cards per group
- 1 recording sheet per player

Set-up:

- Deal all 10 **Problem** cards face down in a row.
- Deal 5 **Answer** cards face up to each player.

Directions:

- **Player 1** goes first
  - Take a card from the row of face down **Problem** cards and turn it face up
  - Write the problem on the recording sheet
  - And, find the answer in simplest form
- If **Player 1** has the **Answer** card, place it face up on top of the **Problem** card, take both cards and say:

Example "2 times what number plus 3 is equal to 13…

I undid adding by 3 with adding by -3 and undid multiplying by 2 with dividing by 2"

- If **Player 1** does not have the answer to the **Problem** card, turn the **Problem** card back over.

- **Players 1 and 2** alternate turns. The **winner** is the first player to match all 5 of their cards.

© OAISD, November 2018

Problem Cards (Set A)

8th Grade – Readiness Standard 6 – 7.EE.4a

Storage Suggestions: Copy the **Problem (Set A)** cards and **Answer (Set A)** cards in two different colors. Store 1 set of each in a sealable bag for each pair of students.

Set A_1	$3x + 5 = 11$ Set A	$3x - 5 = -23$ Set A	$2(x + 3) = -4$ Set A	$2(x - 3) = 8$ Set A
	$\frac{2}{3}x + 4 = 10$ Set A	$\frac{2}{3}x - 4 = 6$ Set A	$\frac{1}{4}x + 5 = 7$ Set A	$\frac{1}{4}x - 5 = -2$ Set A
	$-12 = 5x + 3$ Set A	$27 = 5x - 3$ Set A	Set A	Set A
Set A_2	$3x + 5 = 11$ Set A	$3x - 5 = -23$ Set A	$2(x + 3) = -4$ Set A	$2(x - 3) = 8$ Set A
	$\frac{2}{3}x + 4 = 10$ Set A	$\frac{2}{3}x - 4 = 6$ Set A	$\frac{1}{4}x + 5 = 7$ Set A	$\frac{1}{4}x - 5 = -2$ Set A
	$-12 = 5x + 3$ Set A	$27 = 5x - 3$ Set A	Set A	Set A

© OAISD, November 2018

Answer Cards (Set A)

8th Grade – Readiness Standard 6 – 7.EE.4a

Storage Suggestions: Copy the **Problem (Set A)** cards and **Answer (Set A)** cards in two different colors. Store 1 set of each in a sealable bag for each pair of students.

Set A_1	$x = 2$ Set A	$x = -6$ Set A	$x = -5$ Set A	$x = 7$ Set A
	$x = 9$ Set A	$x = 15$ Set A	$x = 8$ Set A	$x = 12$ Set A
	$x = -3$ Set A	$x = 6$ Set A	Set A	Set A
Set A_2	$x = 2$ Set A	$x = -6$ Set A	$x = -5$ Set A	$x = 7$ Set A
	$x = 9$ Set A	$x = 15$ Set A	$x = 8$ Set A	$x = 12$ Set A
	$x = -3$ Set A	$x = 6$ Set A	Set A	Set A

© OAISD, November 2018

Problem Cards (Set B)

8th Grade – Readiness Standard 6 – 7.EE.4a

Storage Suggestions: Copy the **Problem (Set B)** cards and **Answer (Set B)** cards in two different colors. Store 1 set of each in a sealable bag for each pair of students.

Set B_1	$6x + 5 = 23$ Set B	$6x - 5 = -59$ Set B	$7(x + 3) = -21$ Set B	$7(x - 3) = 35$ Set B
	$\frac{3}{4}x + 8 = 23$ Set B	$\frac{3}{4}x - 8 = 10$ Set B	$\frac{2}{5}x + 9 = 13$ Set B	$\frac{2}{5}x - 9 = 1$ Set B
	$-12 = 7x + 9$ Set B	$27 = 5x - 3$ Set B	Set B	Set B
Set B_2	$6x + 5 = 23$ Set B	$6x - 5 = -59$ Set B	$7(x + 3) = -21$ Set B	$7(x - 3) = 35$ Set B
	$\frac{3}{4}x + 8 = 23$ Set B	$\frac{3}{4}x - 8 = 10$ Set B	$\frac{2}{5}x + 9 = 13$ Set B	$\frac{2}{5}x - 9 = 1$ Set B
	$-12 = 7x + 9$ Set B	$27 = 5x - 3$ Set B	Set B	Set B

© OAISD, November 2018

Answer Cards (Set B)

8th Grade – Readiness Standard 6 – 7.EE.4a

Storage Suggestions: Copy the **Problem (Set B)** cards and **Answer (Set B)** cards in two different colors. Store 1 set of each in a sealable bag for each pair of students.

Set B_1	$x = 3$ Set B	$x = -9$ Set B	$x = -6$ Set B	$x = 8$ Set B
	$x = 20$ Set B	$x = 24$ Set B	$x = 10$ Set B	$x = 25$ Set B
	$x = -3$ Set B	$x = 6$ Set B	Set B	Set B
Set B_2	$x = 3$ Set B	$x = -9$ Set B	$x = -6$ Set B	$x = 8$ Set B
	$x = 20$ Set B	$x = 24$ Set B	$x = 10$ Set B	$x = 25$ Set B
	$x = -3$ Set B	$x = 6$ Set B	Set B	Set B

© OAISD, November 2018

Questions for Solving Word Problems

Q_1 ***What is the problem about?***
Q_2 ***What do I need to find?***
Q_3 ***What do I know?***
Q_4 ***What can I try?***
Q_5 ***Does my answer make sense?***

© OAISD, November 2018

Steps for Solving Word Problems

Q_1. *What is the problem about?*
Q_2. *What do I need to find?*
Q_3. *What do I know?*
Q_4. *What can I try?*
Q_5. *Does my answer make sense?*

© OAISD, November 2018