

TCA Middle School Summer Learning 8th Grade Algebra Math Requirements

1. Watch lesson video posted for the lesson in the Advanced Math Google Classroom
2. Complete the notes page for the lesson
3. Complete lesson practice pages

*You have 8 lessons to complete over the course of the summer

*You do not have to complete iReady lessons.

Advanced Math Google Classroom code:

vxdao3do

EQUATIONS WITH SPECIAL CASES

INDEPENDENT PRACTICE

Name _____

Date _____ Pd _____

Solve each of the equations below, showing all work. Then, record the letter of the problem in the boxes below according to the number of solutions.

ONE SOLUTION	NO SOLUTION	ALL REAL NUMBERS

A $-7 + 5x = 5x + 9$	B $9x - 17 = -17 + 9x$	C $-13x + x = 8x - 20x$
D $4x - 1 = 10 + 4x$	E $3x + 9 = 2x + 5$	F $7x = 5x - 25 + 30$
G $4(6x - 4) = 8(3x - 2)$	H $15(2x + 2) = 10(3x + 4)$	I $8x + 7(2 - 3x) = -6(2x + 5)$

In 1-6, solve the equation. Be sure to show all work.

1. $13 - 5x = -5x + 13$	2. $7(2x - 1) = 1 + 14x - 8$	3. $13 + 2(x - 6) = 4x - 7$
4. $\frac{1}{4}(8x + 4) = 2x - 4$	5. $\frac{1}{2}(6x + 8) = 2x + 4 + x$	6. $4x + 12 - 8 = 2x + 3 + 2x$

Apply your knowledge of solving equations to answer 7-9.

7. Anna was solving an equation, and her last line of work read " $8 = 8$ ". What does this mean?	8. Tyler was solving an equation, and his last line of work read " $-12 = 12$ ". What does this mean?
9. The left side of an equation is given below. Complete the right side of the equation with an expression that is unique from the expression on the left, includes the distributive property and will result in the solution stated above the equation. Solve your equation to prove your work is correct.	
NO SOLUTION	ALL REAL NUMBERS
$2(6x - 1) = \underline{\hspace{2cm}}$	$3(10x - 4) = \underline{\hspace{2cm}}$

EQUATIONS WITH SPECIAL CASES

STUDENT HANDOUT

Name _____
Date _____ Pd _____

In A-F, fill in the blanks with a number that will make the equation true. The number you pick for the blank must be the same in each blank of that letter's equation. Then, answer the questions that follow.

A $2(\underline{\quad}) = -10$

B $5(\underline{\quad}) = 5(\underline{\quad})$

C $3 + (\underline{\quad}) = 5 + (\underline{\quad})$

D $2 + (\underline{\quad}) = 2 + (\underline{\quad})$

E $(\underline{\quad}) - 7 = (\underline{\quad}) + 7$

F $15 + (\underline{\quad}) = 25$

- Were there any equations that could have more than one solution? If so, which letters?
- Were there any equations that did not have a solution? If so, which letters?
- Which equations had only one value that would make the equation true?

When solving equations, there are three types of possible solutions described below.

_____ SOLUTION	_____ SOLUTION	_____ REAL NUMBERS
In this type of equation, _____ number will work to make the equation true.	In this type of equation, there is _____ a number that will work to make the equation true.	In this type of equation, _____ number will work to make the equation true.
Ex: $-4x + 12 = 4x + 20$	Ex: $3x - 3 = 3x + 6$	Ex: $-2x + 7 = -2x + 7$


After solving each of the example equations in the table above, summarize what happens for each type of solution:

a. One solution:	b. No solution:	c. All real numbers:

Mrs. Moore wrote the following equation on the board and asked her students to create real-world situations that it could represent. Use the equation to answer 6 and 7.

$$0.75x + 3 = 0.25x + 5.25$$


6. Katie wrote the following situation to match the equation:



At an ice cream shop, customers pay \$3.00 for a medium ice cream plus \$0.75 per topping. At a second ice cream shop, customers pay \$5.25 for a medium ice cream plus \$0.25 per topping. How many toppings would a customer have to order for the ice cream to cost the same at either shop?

Does Katie's situation match the equation? If not, explain.

7. Dean wrote the following situation to match the equation:



Joseph has \$3.00 in his piggy bank and adds \$0.75 each day. Kelsey has \$5.25 in her piggy bank and spends \$0.25 each day. When will Joseph and Kelsey have the same amount in their piggy banks?

Does Dean's situation match the equation? If not, explain.

8. Create and write a real-world situation that could be represented by the equation below:

$$\frac{1}{2}x + 2\frac{1}{8} = \frac{1}{4}x + 3\frac{1}{8}$$

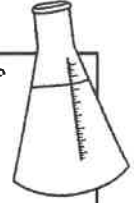
WRITING EQUATIONS WITH VARIABLES ON BOTH SIDES

INDEPENDENT PRACTICE

Name _____

Date _____ Pd _____

In 1-5, write an equation to represent the situation. Then, solve the equation.



1. Garrett can order stickers from two companies. Company A charges a \$30 design fee plus \$0.80 per sticker. Company B charges a \$14 design fee plus \$1.20 per sticker. How many stickers would Garrett have to order for the cost at both companies to be the same?

a. Equation: _____

b. Solution: _____

2. Maria is monitoring the temperature of two substances in her science lab. Substance A is currently 96.2° and rising 1.5° each minute. Substance B is currently 98.5° and cooling 0.8° each minute. After how many minutes will the two substances be at the same temperature?

a. Equation: _____

b. Solution: _____

3. Jaycie has a VIP membership to a movie theater which costs \$27 a year and \$6.00 for each movie she sees. Claire doesn't have a membership, so she pays \$8.25 for each movie she sees. How many movies would the two girls have to see in a year in order to pay the same amount?

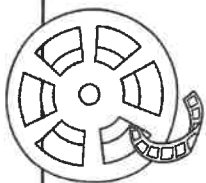
a. Equation: _____

b. Solution: _____

4. Gayle started with 30 pairs of shoes and donated x pairs. Her sister Bonnie started with 22 pairs of shoes and donated half as many pairs as Gayle did. How many pairs of shoes did Gayle donate if they had the same number of shoes remaining?

a. Equation: _____

b. Solution: _____



5. Two more than a certain number is 15 less than the product of $\frac{7}{8}$ and the number.

a. Equation: _____

b. Solution: _____

Use the keywords to help you set up and solve an equation for each of the situations below.

SITUATION	EQUATION & SOLUTION
<p>3. Celebrity A has 400 followers on social media and gains 75 followers each day. Celebrity B has 1,000 followers on social media and loses 25 followers a day. After how many days will the celebrities have the same number of followers?</p>	
<p>4. Ben and his friends are going to play putt putt. One location charges a \$2.00 fee plus \$7.50 per game. A second location charges an \$8.00 fee plus \$6.00 per game. How many games would they have to play for both locations to cost the same amount?</p>	
<p>5. Isabelle pays \$2.50 each time she rides the bus to work. She could buy a bus pass for a one-time fee of \$15.00 and then would only pay \$1.00 per bus ride. After how many bus rides would the two options cost Isabelle the same amount?</p>	
<p>6. Thirty-five more than 0.8 times a number is the same as 43 less than the product of -7 and the number.</p>	
<p>7. Decreasing $\frac{3}{4}$ times a number by 18 is equal to increasing $\frac{1}{2}$ times the number by 5.</p>	

8. Write a real-world situation that could be represented by the equation $12.5x + 30 = -7.5x + 90.5$.

Situation: _____

What does the variable represent? _____

WRITING EQUATIONS WITH VARIABLES ON BOTH SIDES

STUDENT HANDOUT

Name _____
Date _____ Pd _____

Use the table below to review different synonyms for mathematical operations. Then, use the keywords to help you write and solve the following real-world problems.

ADD:	SUBTRACT:	MULTIPLY:	DIVIDE:	EQUALS:

For 1 and 2, use a-d to help you write an equation that could be used to solve the problem.

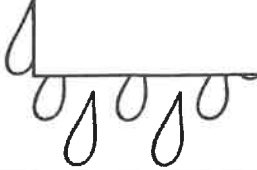


1. Richard purchased a box of 12 cookies and Meagan purchased a bag of 10 cookies. Richard ate x number of cookies from his box, while Meagan ate half the number of cookies that Richard ate. How many cookies did Richard eat if they have the same number of cookies left over?

a. Define the variable:	b. Write an expression to represent Richard:	c. Write an expression to represent Meagan:	d. Write an equation:

2. Nolan set out a beaker containing 2.8 inches of rainwater which increased by an average of 3.1 inches per day. Tina set out a beaker containing 5.3 inches of rainwater which increased by an average of 1.7 inches per day. After how many days will the two beakers hold the same amount of rainwater?

a. Define the variable:	b. Write an expression to represent Nolan:	c. Write an expression to represent Tina:	d. Write an equation:



EQUATIONS WITH VARIABLES ON BOTH SIDES

INDEPENDENT PRACTICE

Name _____

Date _____ Pd _____

In 1-6, find the value of x needed to make the equation true. Show all work.

<p>1.</p> $22 + 54x = -20 + 60x$ <p>_____</p>	<p>2.</p> $-5x - 16 = 8x - 3$ <p>_____</p>	<p>3.</p> $2x - 1 = \frac{3}{4}x + 9$ <p>_____</p>
<p>4.</p> $22 + 54x = 10(6x - 2)$ <p>_____</p>	<p>5.</p> $6 + 8(x - 1) = 2(3x + 4)$ <p>_____</p>	<p>6.</p> $\frac{1}{4}(40 - 8x) = 19x + 2 - 5x$ <p>_____</p>

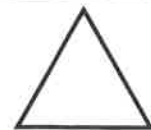
7. The steps at the right show Cam's work in solving an equation. Circle the line where he makes a mistake. Then, find the correct solution to the equation.

$-12x + 12 = -3(5x + 8)$
$-12x + 12 = -15x + 24$
$3x + 12 = 24$
$3x = 12$
$x = 4$

The perimeters of the square and the equilateral triangle shown are equal. Mark each statement below as true or false. If false, rewrite the statement correctly.



$$2.5x - 3$$



$$2x - 2$$

_____ 8. The situation can be represented by $2.5x - 3 = 2x - 2$.

_____ 9. The value of $x = 3$.

_____ 10. The perimeter of each shape is 3 units.

In 6-9, find the value of x needed to make the equation true.

6.

$$\frac{1}{4}x + 17 = x - 4$$

7.

$$3(2x + 1) = 5(x - 4)$$

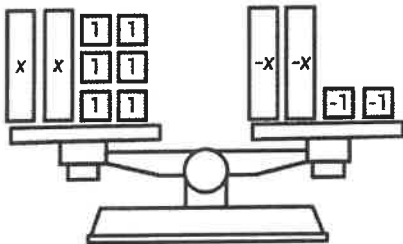
8.

$$6 + 12(x + 3) = 7x + 30 + 6x$$

9.

$$5 + \frac{1}{3}(6x + 9) = -(x - 4)$$

10. Write and solve the equation modeled below.



Equation: _____ Solution: _____

11. Brayden and Ellie each solved an equation as shown below. Circle the name of the student who solved correctly.

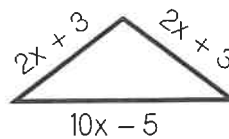
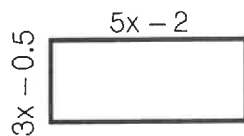
BRAYDEN

$$\begin{aligned} -3x - 4 + x &= -5x + 5 \\ -2x - 4 &= -5x + 5 \\ 3x - 4 &= 5 \\ 3x &= 9 \\ x &= 3 \end{aligned}$$

ELLIE

$$\begin{aligned} 7x - 2 &= -x + 6 \\ 6x - 2 &= 6 \\ 6x &= 4 \\ x &= \frac{2}{3} \end{aligned}$$

12. The perimeters of the rectangle and triangle shown below are equal. Write an equation to represent the situation and solve for x . Then, find the perimeter of each shape.



Equation: _____ $x =$ _____ Perimeter: _____

Summarize today's lesson:

EQUATIONS WITH VARIABLES ON BOTH SIDES

STUDENT HANDOUT

Name _____

Date _____ Pd _____

Observe equations A and B at the right. What makes equation B different from equation A?

A $5n - 7 = 23$

B $7n - 7 = 2n + 23$

Is there a way to rewrite equation B so that it remains balanced and matches equation A? Explain.

If an equation has variables on both sides of the equal sign, use the following steps to solve:

STEPS TO SOLVE

Ex. $7n - 7 = 2n + 23$

1. Use inverse operations to collect _____ on the same side of the equation
2. Use inverse operations to collect _____ on the opposite side of the equation
3. _____ the equation by isolating the variable

Solve the following equations with variables on both sides.

<p>1. $8x - 7 = 4x + 21$</p> <p style="text-align: right;">_____</p>	<p>2. $-11x + 9 = -2x + 45$</p> <p style="text-align: right;">_____</p>
<p>3. $13x + 9 = 6x - 12$</p> <p style="text-align: right;">_____</p>	<p>4. $14x + 1 = 8x + 13$</p> <p style="text-align: right;">_____</p>
<p>5. Jane is solving the equation below and plans to first add $12x$ to both sides. Her friend Allie thinks she should instead subtract $8x$ from both sides. Who is correct? Explain.</p> <p style="text-align: center;">$8x - 19 = -12x + 61$</p>	

MULTI-STEP EQUATIONS WITH DISTRIBUTIVE PROPERTY INDEPENDENT PRACTICE

Name _____
Date _____ Pd _____

Solve each equation below. Then, find the sum of the solutions in the three columns. If the problems are answered correctly, the sum of each column will be the same.

COLUMN #1

A $4(2x - 7) - 2x = -10$

D $8.6w + 2.2(2w - 5) = 54$

G $\frac{1}{2}v - 12 + 20 = 14$

SUM: _____

COLUMN #2

B $3.3(n - 8) - n = 1.2$

E $\frac{1}{3}(21y + 39) = -36$

H $1.4(x + 5) + 1.6x = 52$

SUM: _____

COLUMN #3

C $12 + \frac{1}{5}(10c + 5) = 59$

F $\frac{5}{4}(20z + 12) = -35$

I $-12 = 19k - 4k + 3$

SUM: _____

<p>4.</p> $8 + \frac{2}{3}(6x + 30) = 80$ <p>_____</p>	<p>5.</p> $4x - 4(7 - 5x) = -20$ <p>_____</p>	<p>6.</p> $-2.5(3x - 4) + 5x = 32.5$ <p>_____</p>
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Apply your knowledge of solving multi-step equations to answer questions 7-9.

7. Andre incorrectly solved the equation at the right. Identify Andre's mistake. Then, solve the equation to find the correct solution.

$$\begin{aligned}
 8x + 2x(5 - 10) &= 110 \\
 10x(5 - 10) &= 110 \\
 50x - 100x &= 110 \\
 -50x &= 110 \\
 x &= 2.2
 \end{aligned}$$

8. Marty shipped two packages to his sons that each included a pair of shoes and four new sweaters. Each pair of shoes weighed 1.5 lbs and each sweater weighed x pounds. If the total weight of both packages was 7 lbs, mark each statement as true or false. Correct any false statements.

_____ a. The situation can be represented by the equation $2(1.5x + 4) = 7$.

_____ b. The weight of each sweater is 0.5 lbs.



9. Three friends each ordered two slices of pizza and a drink at the mall. If drinks cost \$0.75, and the total of their orders was \$11.25, how much did one slice of pizza cost?



Pizza: _____

Summarize today's lesson:

MULTI-STEP EQUATIONS WITH DISTRIBUTIVE PROPERTY

STUDENT HANDOUT

Name _____

Date _____ Pd _____

Two friends met up for coffee and dessert. Each friend got a medium drink and two cupcakes, and one friend bought a mug for \$12.00. The friend who bought the mug paid for their order, and the total was \$29.00.

a. If a medium cup of coffee costs \$3.50, use the lines at the right to write an equation to solve for c , the cost of a cupcake.

$$2(\underline{\quad} + \underline{\quad}) + \underline{\quad} = \underline{\quad}$$

b. Distribute and combine like terms on the left.

c. Solve for c .



Similar to the example above, when equations involve multiple steps and the distributive property, follow the steps to solve below. Apply the steps to work through #1.

STEPS TO SOLVE

- _____ first
- _____ like terms (if necessary)
- _____ the equation

1.

$$-4(-6x + 1) - 8 = 12$$

Solve each equation. Be sure to show all work.

2. Solve the equation.

$$4 + 2(x - 8) = 44$$

3. Solve the equation.

$$-3(2p - 3) + 10p = 39$$

MULTI-STEP EQUATIONS

INDEPENDENT PRACTICE

Name _____

Date _____ Pd _____

Each of the cards on the left has the same solution as one of the cards on the right. Find the cards with matching solutions to complete the sentences below.

A

$$8x - 28 - 2x = -10$$

F

$$3.3x - 26.4 - x = 1.2$$

B

$$12 + 2x + 1 = 59$$

G

$$7x - 10x + 18 + 2x = -5$$

C

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

H

$$7x + 15 - 9x = 5$$

D

$$-2 + 25x + 17 = -35$$

I

$$15 = \frac{1}{2} + \frac{3}{2}x + 10$$

E

$$8.6x + 4.4x - 11 = 54$$

J

$$-17x - 8 + x = 24$$

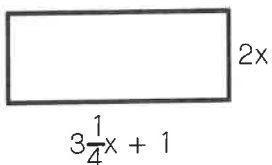
- Card A and Card _____ have the same solution of _____.
- Card B and Card _____ have the same solution of _____.
- Card C and Card _____ have the same solution of _____.
- Card D and Card _____ have the same solution of _____.
- Card E and Card _____ have the same solution of _____.

In 6-8, solve the multi-step equations.

<p>6.</p> $17n - 23n + 11.5n = 44$ <p>_____</p>	<p>7.</p> $15 - 8p + 6.75p = 10$ <p>_____</p>	<p>8.</p> $18 - 5w + 7w - 4 = 28$ <p>_____</p>
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Apply your knowledge of solving multi-step equations to answer each of the following.

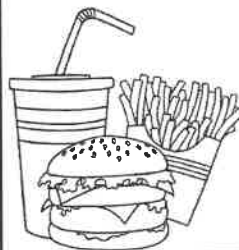
9. The perimeter of the rectangle below is 65 inches.



a. What is the value of x ? _____

b. What are the dimensions of the rectangle?

10. James bought a cheeseburger, fries and a drink for dinner. The cheeseburger was three times the price of the fries, and the drink and the fries were the same price. If the entire meal cost \$12.50, what was the price of each item?



Cheeseburger: _____

Fries: _____

Drink: _____

11. Frankie solved the equation below. Describe Frankie's mistake and record the correct solution.

$$2.3x - 3.9 + 1.2x - 4.6 = 2$$

$$3.5x - 8.5 = 2$$

$$3.5x = 10.5$$

$$x = 7$$

Summarize today's lesson:

MULTI-STEP EQUATIONS

STUDENT HANDOUT

Name _____

Date _____ Pd _____

April needs to solve the equation shown at the right. Describe the steps you think April should take in the space below. Then, solve the equation in the box.

$$2x + 3x + x - 2 = -14$$

SOLVING MULTI-STEP EQUATIONS

- If possible and/or necessary, _____ like terms on the same side of the equation first.
- Then, _____ the variable to solve the equation.

Practice solving the multi-step equations below. Be sure to show all work.

1. $4x + 14 + 4x = 38$ _____	2. $-12 = 10n - 40n + 3$ _____
3. $\frac{1}{2}b + 8 - 10 = 6$ _____	4. $-14 = 7w + 2w + 8.5$ _____

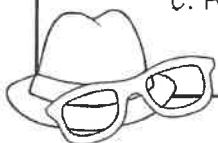
5. Calvin went shopping over the weekend and bought a t-shirt, a new pair of shoes, a pair of sunglasses, and a hat that cost \$9. The shoes were twice as much as the shirt, and the sunglasses were half the price of the shirt. The total cost of his purchase was \$65.



a. Write an equation to represent Calvin's purchase using "s" for the cost of the shirt.

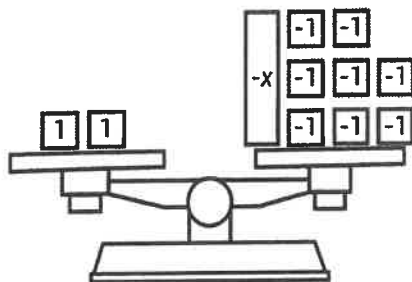
b. _____ + _____ + _____ + _____ = _____
Simplify the equation by combining like terms and solve.

c. Record the cost of each item.



Shirt: _____ Shoes: _____ Sunglasses: _____

11. Circle the name of the student who correctly wrote the equation modeled below. Then, find the solution to the equation.



BENNY

$$2x = -8 - x$$

FINLEY

$$2 = 8 + x$$

GENE

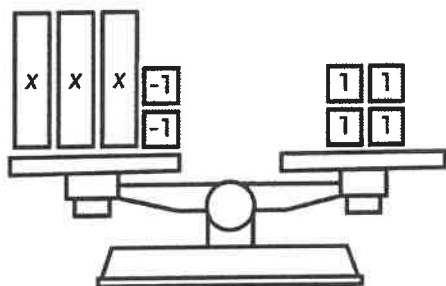
$$2 = -8 - x$$

ASIA

$$2x = -6x - 1$$

Solution: _____

12. Write and solve the equation modeled below.



Equation: _____

Solution: _____

ONE AND TWO-STEP EQUATIONS

INDEPENDENT PRACTICE

Name _____

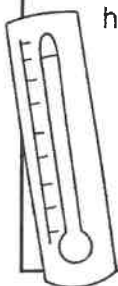
Date _____ Pd _____

<p>1. Which of the following is the correct step to solve the equation $-\frac{2}{5}x = 10$?</p> <p>a. Add $\frac{2}{5}$ to each side of the equation.</p> <p>b. Divide each side by $-\frac{2}{5}$.</p> <p>c. Subtract 10 from each side.</p> <p>d. Divide 10 from each side.</p>	<p>2. Which of the following is a solution to the equation $3 - 4y = 19$?</p> <p>a. $y = -19$</p> <p>b. $y = 20$</p> <p>c. $y = 4$</p> <p>d. $y = -4$</p>
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Solve each of the equations in 3-8.

<p>3. $7m - 17 = 60$</p> <p>_____</p>	<p>4. $\frac{c}{-9} + 6 = 14$</p> <p>_____</p>	<p>5. $18 = 5m + 3$</p> <p>_____</p>
<p>6. $\frac{4}{3}y = 16$</p> <p>_____</p>	<p>7. $\frac{w}{-2.5} = 8$</p> <p>_____</p>	<p>8. $\frac{1}{5}x - 2 = 4$</p> <p>_____</p>

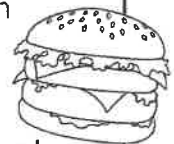
9. In the morning, the water temperature at the beach was 82 degrees. The temperature rose 0.6 degrees each hour. If the water temperature is now 85 degrees, write and solve an equation to find h , the number of hours that have passed.



Equation: _____

Solution: _____

10. While at the beach, Daniel buys lunch for his family from a food stand. He purchases one hot dog for \$2.50 and 3 hamburgers. If he spent \$13 total, write and solve an equation to find h , the amount each hamburger cost.



Equation: _____

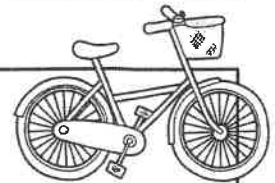
Solution: _____

Solve the following two-step equations and show all work.

<p>6. $14 + 9m = -13$</p> <p>_____</p>	<p>7. $-12 = \frac{n}{2} - 6$</p> <p>_____</p>	<p>8. $\frac{1}{2}b - 6 = -4$</p> <p>_____</p>
<p>9. $0.5w + 15 = 20$</p> <p>_____</p>	<p>10. $\frac{d}{1.6} + 31 = 40$</p> <p>_____</p>	<p>11. $\frac{2}{3}x + 19 = 35$</p> <p>_____</p>

Apply your knowledge of solving equations to answer 12-15.

12. "Wheels by the Waves" rents bikes to customers for \$3.50 an hour plus a \$12 fee. If Lucy spent \$33 on a bike rental, how many hours (h) did she rent a bike?



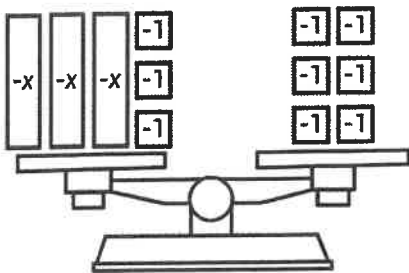
Equation: _____ Solution: _____

13. Paul is scuba diving and is 3.5 feet below sea level. He is descending at a rate of 0.5 feet per minute. If Paul is now at 12 feet below sea level, how many minutes has he been diving?



Equation: _____ Solution: _____

14. Write and solve the equation modeled below.



Equation: _____ Solution: _____

15. An equilateral triangle has side lengths that can be represented by $1.2x - 8$ units.

- Write an expression to represent the perimeter of the triangle.
- If the triangle has a perimeter of 12 units, find the value of x .

ONE AND TWO-STEP EQUATIONS

STUDENT HANDOUT

Name _____

Date _____ Pd _____

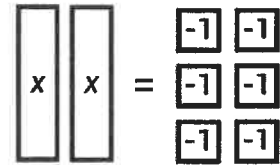
Label the different parts of an equation at the right. Then, describe what makes an equation different from an expression.

$$\underbrace{15x + 4}_{\text{expression}} = 60$$

ONE-STEP EQUATIONS	<ul style="list-style-type: none"> To solve a one-step equation, _____ the variable by using _____, or opposite, operations.
TWO-STEP EQUATIONS	<ul style="list-style-type: none"> First, use addition/subtraction to remove the _____. Next, use multiplication/division to remove the _____. Tip: If dividing by a fraction, multiply by the _____.

Use the algebra tiles shown at the right to answer a-c.

- What equation is modeled by the tiles?
- Find the value of x.
- How can you check that your solution is correct?



Solve the following one-step equations. Show all work and check your solutions.

1. $\frac{x}{1.5} = 16$ _____	CHECK:
--------------------------------------	---------------

2. $t - 4.25 = -4$ _____	CHECK:
---------------------------------	---------------

3. $\frac{6}{7}e = 12$ _____	CHECK:
-------------------------------------	---------------

4. $m + 10 = 3.5$ _____	CHECK:
--------------------------------	---------------

5. To solve the equation shown, Darren thinks you should subtract 2.5 from each side while Eddie thinks you should divide both sides by 2.5. Who do you agree with, and what value of n makes the equation true?	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> $2.5n = 50$ </div>
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SIMPLIFYING EXPRESSIONS WITH DISTRIBUTIVE PROPERTY

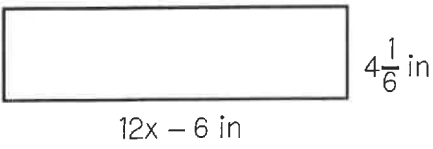
INDEPENDENT PRACTICE

Name _____

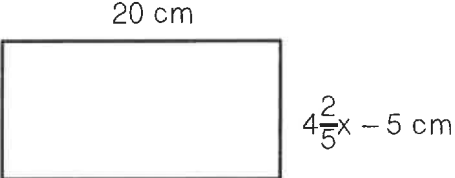
Date _____ Pd _____

<p>1. In order for terms to be like terms, they must have...</p> <p>a. The same variable b. The same coefficient c. The same exponent d. Both a and c</p>	<p>2. Which of the following is an example of a set of like terms?</p> <p>a. $\{19y, 19, y\}$ b. $\{18x, -x, 21x\}$ c. $\{15, 20, 25y\}$ d. $\{-2x, -2y, -2xy\}$</p>
<p>3. Which is the correct simplified version of the expression $5(-9x + 15)$?</p> <p>a. $-4x + 20$ b. $-45x - 75$ c. $-45x + 75$ d. $14x + 20$</p>	<p>4. Which is the correct simplified version of the expression $-7(2x - 3)$?</p> <p>a. $-14x + 21$ b. $-14x - 21$ c. $-5x - 10$ d. $-14x - 10$</p>

In 5-8, simplify the expression by distributing and combining like terms if necessary.

<p>5.</p> $\frac{3}{2}(4f - 10)$ <p>_____</p>	<p>6.</p> $k + \frac{1}{3}(42 + 48k)$ <p>_____</p>
<p>7.</p> $9n + 18(2n - 6) + 13$ <p>_____</p>	<p>8.</p> $8.5(4 + 3h) - h$ <p>_____</p>
<p>9. Jules wrote the expression below, but the first term got erased. If the expression simplifies to $-46x + 18$, find the missing term.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> $\underline{\hspace{2cm}} - 4(12x - 5) + 2x$ </div> <p>_____</p>	<p>10. Write a simplified expression for the area of the rectangle.</p> <div style="text-align: center;">  <p style="margin-left: 100px;">$12x - 6$ in</p> <p style="margin-left: 150px;">$4\frac{1}{6}$ in</p> </div> <p>_____</p>

In 5-11, simplify the expression by distributing and combining like terms if necessary.

<p>5.</p> $-8(4y - 5)$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	<p>6.</p> $12.5(3 + 2w)$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	<p>7.</p> $\frac{1}{2}(6m + 10)$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>
<p>8.</p> $\frac{2}{3}(3f + 12) + f$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	<p>9.</p> $\frac{3}{4}x + 2\left(9 - \frac{1}{4}x\right)$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	
<p>10.</p> $-10(3.25c + 5.5) - 20$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	<p>11.</p> $13 - 0.25(4g + 6)$ <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>	
<p>12. Simplify an expression for the area of the rectangle.</p> <div style="text-align: right; margin-top: 20px;">  </div> <hr style="width: 80%; margin-left: auto; margin-right: auto;"/>		
<p>13. Mrs. McKinney asked her students to create an expression that includes the distributive property and simplifies to $-10x + 20$. Circle the name of any student who correctly completed the task.</p> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>JOURNEY</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">$2(-5x + 10)$</div> </div> <div style="text-align: center;"> <p>KAI</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">$-2(-5x + 10)$</div> </div> <div style="text-align: center;"> <p>LUIS</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;">$5(-2x + 4)$</div> </div> </div>		

Summarize today's lesson:

SIMPLIFYING EXPRESSIONS

INDEPENDENT PRACTICE

Name _____

Date _____ Pd _____

Match each expression with the correct simplified expression. Use the corresponding letter with each solution to help you solve the riddle.

1 $4x - 2x - 20x + x$	2 $-\frac{4}{7} + \frac{2}{7}x - 14x + \frac{4}{7}$
3 $7 - 9x - 15 + 12x$	4 $-2.4x + 3.8x - x$
5 $-0.8x + 40 - 8x - 35$	6 $12\frac{5}{6}x - 14x + \frac{1}{6}x$
7 $-3x + 14 - 11 + 11x$	8 $3.75x - 5 - 8.75x + 4.5 + 0.5$

A: $-5x$	E: $-8.8x + 5$	O: $3x - 8$	L: $0.4x$	G: $-x$	W: $8x + 3$
R: $-17x$	B: $-13\frac{5}{7}x$	M: $-8x$	U: $-2\frac{1}{6}x$	D: $-13\frac{1}{7}x$	N: $-5.5x$

WHAT IS A BIRD'S FAVORITE SUBJECT?

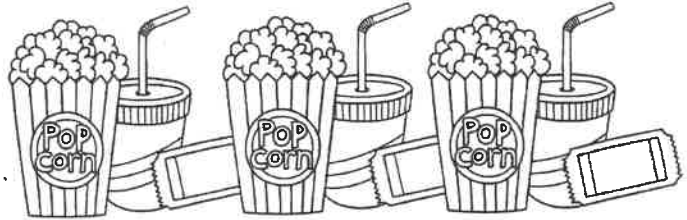
3 7 4 6 5 2 1 8

SIMPLIFYING EXPRESSIONS

- We can simplify algebraic expressions by combining _____.
- Be careful when you are combining terms to check the _____ that is in front of the term.

A group of friends went to the movies and bought the tickets (t), drinks (d) and popcorn (p) shown.

- Use the given variables to write an expression representing the individual items purchased:


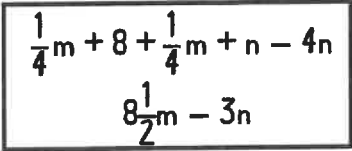


- Simplify the expression by combining like terms.

In 6-11, simplify each expression by combining like terms.

6. $13r + 5r + 2n$ _____	7. $-k + 16 - 12k$ _____	8. $7m + 19g - 10m + 6g$ _____
9. $-18.7b + 4b - 0.3b$ _____	10. $\frac{1}{2}b - 9 + 8b - 7 - b + 14$ _____	11. $-1.2k + 10.9 - g + 0.5g + 0.3k$ _____

Apply your knowledge of simplifying expressions to answer each of the following.

12. Simplify an expression for the perimeter of the rectangle. $17.4x - 0.8$ cm  6x cm Perimeter: _____	13. Darci simplified the expression as shown below. Explain Darci's mistake and give the correct simplified expression. 
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Summarize today's lesson:

SIMPLIFYING EXPRESSIONS

STUDENT HANDOUT

Name _____

Date _____ Pd _____

Mrs. Thornberry wrote three examples of expressions on the board as shown. Using the examples, write your prediction of what makes something a mathematical expression in the space below her examples.

$$-25$$

$$30a + 8$$

$$-4.2x + 9y - 13x$$

EXPRESSION	<ul style="list-style-type: none"> A mathematical phrase that can contain _____, _____ and _____ (like addition and subtraction). Will not have an _____ sign.
TERM	<ul style="list-style-type: none"> A term is a constant or a _____ in an expression. Separated by _____ and _____ signs.
COEFFICIENT	<ul style="list-style-type: none"> The number in front of a _____.
LIKE TERMS	<ul style="list-style-type: none"> Must have both the same base (or _____) and the same exponent (or _____).

Use the definitions above to help you complete the following.

1. Give an example of an expression with four terms.	2. List all the terms in the expression below. $6x - 10y + 13 + 5z$	3. List the coefficients in the expression below. $14x - 7x + 1 - 2x$		
4. Give an example of a like term for each of the following: a. $14y$ _____ b. $-9b$ _____ c. 200 _____ d. h^2 _____				
5. Circle the letter of any card that gives an example of like terms.				
A.	B.	C.	D.	E.
$\frac{1}{4}c$ and $-9c$	$2.2n$ and 2.2	$6y$ and $6x$	$5d^2$ and d^2	30 and -25