Mr. Rogove

Date:

**LEARNING OBJECTIVE:** We will rewrite expressions as the product of two factors (G7M3L5)

#### **CONCEPT DEVELOPMENT:**

Remember that when we distribute, we multiply the term outside of the parentheses to the terms inside the parentheses:

$$3(x+6) = (3 \cdot x) + (3 \cdot 6) = 3x + 18$$

**Factoring as undoing Distribution:** What if we started with 3x + 18? Could we find the greatest common factor and write equivalent expressions?

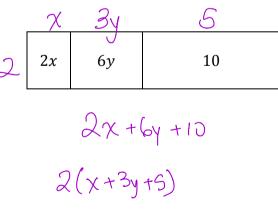
a. $2(x + 5)$	2x+10
b. $3(x + 4)$	3×+12
c. 6(x+1)	6×+6
d. $7(x-3)$	7x-21
e. 5(x+6)	$\sqrt{5}x + 30$
f. $8(x+1)$	8x + 8
g. 3(x-4)	3x - 12
h. 5(3x+4)	$\frac{15x}{5} + \frac{20}{5}$

## **Using an Array Model**

We can use an array model to rewrite expressions as well. *Examples*:

	X	44	3
4	4 <i>x</i>	16 <i>y</i>	12

$$4x+16y+12$$
  
 $4(x+4y+3)$ 



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## **GUIDED PRACTICE:**

# Steps for Rewriting Expressions as the Product of Two Factors

- 1. Combine like terms (\*\*if necessary)
- 2. Identify and factor out the greatest common factor of each term.

	$\frac{15x + 27y - 12}{3}$ GCF:3	4x + 18y - 10
	3(5x+9y-4)	2(2x+9y-5)
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	3(14x-3y+1)	8 (3x+4y-1) WE NEED THIS 1!!
100	$\frac{-3c}{-3} - \frac{51d}{-3} + \frac{81}{-3} \text{ GCF: -3}$ $-3(c+17d-27)$	$-\frac{6x}{-6} + \frac{36y}{-6} - \frac{42}{-6} \qquad GCF: -6$ $-6(x + \frac{1}{2} - \frac{1}{2}) \qquad NEGATIVE$ $-6(x - 6y + 7) \qquad GCF$
	$2(x+6) + 3x + 18$ $2x + 12 + 3x + 18$ $(2x+3x) + (12+18)$ $5x + 30 \qquad GCF : 5$ $5(x+6)$	3x + 4(x + 2y) + 6y (3x + 4x) + (8y + 6y) 7x + 14y GCF: 7 7(x + 2y)

## Steps for Rewriting Expressions as the Product of Two Factors

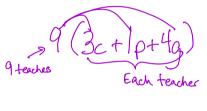
- 1. Combine like terms (\*\*if necessary)
- 2. Identify and factor out the greatest common factor of each term.

4 different families were shopping for Halloween candy. They each purchased 2 bags of chocolate candy (kit kats) and 3 bags of sugary candy (skittles). Write two different expressions that shows how much candy these families purchased. Use the variable c for the chocolate candy and s for the sugary candy. What does each expression represent?

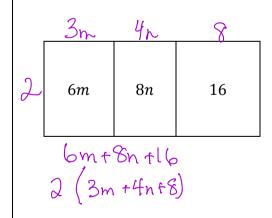
Hamilies Candy that I family bught

SC + 128 EXPRESSION I

Mr. Chesley made Indian corn bouquets for each of the 9 teachers in the math department. Each bouquet had 3 ears of corn. He also gave each of his colleagues 1 miniature pumpkin and 4 gourds. Write two different expressions that shows how what Mr. Chesley bought for the math teachers . Use the variable c for the corn and p for the pumpkins and g for the gourds. What does each expression represent?



Find the two factors by examining the array.



Find the two factors by examining the array.

	Х	lby	3
5	5 <i>x</i>	80 <i>y</i>	15

$$5x+80y+15$$
 $5(x+16y+3)$ 

### INDEPENDENT PRACTICE:

## **Steps for Rewriting Expressions as the Product of Two Factors**

- 1. Combine like terms (\*\*if necessary)
- 2. Identify and factor out the greatest common factor of each term.

-6p	+	9 <i>q</i>
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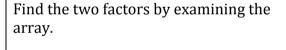
$$12x - 44y - 2z$$

$$-12x + 24y - 48$$

$$45 - 3c - 15d$$

Target is having a special sale where if you purchase 3 cartons of milk and 2 packages of oreos, you can receive \$3 discount off your total bill. 5 customers get this deal. Write 2 different expressions that would represent how much was spent using *c* for the cost of a carton of milk and *p* for the cost of a package of oreos. What do each represent?

3ct 2p+3



7 <i>x</i>	21 <i>y</i>	56
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#### **ACTIVATING PRIOR KNOWLEDGE:**

We can identify the greatest common factors of numbers.

y o	
24 and 28	18 and 30
24 and 20	10 and 30
	<u>I</u>

#### **CLOSURE:**

Rewrite the following:

$$-18 - 15x - 12y - 9x - 6y - 3$$

$$-19 + (-16x) + (-12y) + (-9y) + (-6y) + (-6y$$

#### **TEACHER NOTES:**

Print out page S20 and go over it with students and assign problem set on page S22-23 as homework?

Maps to Lesson 4, except for negative distributive property...will do that as part of lesson 20a.