

## What is the commutative property?

The commutativity of multiplication indicates that **no matter what order the factors are placed in, the product will be the same**. In an array, a number of rows multiplied by a number of columns will have the same answer as a number of columns multiplied by a number of rows.

That means that **rows of a certain number of columns is equal to a certain number of columns of rows**.

Consider the factors 3 and 4. We know that these factors have a product of 12.

3 rows of 4 can be written as  $3 \times 4 = 12$ .

Likewise, 4 columns of 3 can be written as  $4 \times 3 = 12$ .

Therefore, **the commutativity of multiplication allows the same product of the same factor pair multiplied in any order.**

# The Commutativity of Multiplication

Guided Notes

Math 3

For example:

**3** **x**

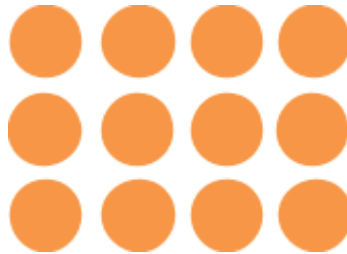
Number of rows

**4**

Number of columns

3 rows

of 4



The array contains 12 dots altogether.

This is the same with:

**4**

Number of rows

**x** **3**

Number of columns

4

rows of 3



The array also contains 12 dots altogether.

Thus, **3 x 4** and **4 x 3** are **both equal to 12**.

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

# **The Commutativity of Multiplication**

Guided Notes

**Math 3**

Draw 4 rows of 5.

What is the total?

Draw 5 rows of 4

What is the total?

## **Time to think**

1. What are the expressions of the two previous arrays?
2. Describe the relationship between the two expressions.

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# The Commutativity of Multiplication

Guided Notes

Math 3

Count by twos 5 times.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Fill in the groups with the correct size of each group:

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$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Count by fives 2 times.

\_\_\_\_\_, \_\_\_\_\_

Fill in the groups with the correct size of each group:

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$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

What do you notice with the two previous equations?

What happened to the equal groups representation?

# The Commutativity of Multiplication

Guided Notes

**Math 3**

Count by threes 6 times.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Draw an array to represent the expression:

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Count by sixes 3 times.

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

Draw an array to represent the expression:

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

What do you notice about the two arrays?

## Time to Think

Does interchanging the order of two factors change the product?

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## **The Commutativity of Multiplication** Guided Notes **Math 3**

There is an ice tray that can freeze 2 rows of 8 ice cubes. How many ice cubes can it produce?

Draw \_\_\_\_\_ rows of \_\_\_\_\_  
ice cubes.

Draw \_\_\_\_\_ rows of \_\_\_\_\_  
ice cubes.

There are \_\_\_\_\_ ice cubes.

Hazel wants to group 6 coins in 3 purses. How many coins does she have altogether?

Draw \_\_\_\_\_ groups of \_\_\_\_\_  
coins.

Draw \_\_\_\_\_ groups of \_\_\_\_\_  
coins.

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

# **The Commutativity of Multiplication**

Guided Notes

**Math 3**

There are \_\_\_\_\_ coins.

# The Commutativity of Multiplication Guided Notes **Math 3**

## Time to Think

Using what we learned about the commutativity of multiplication, answer these word problems:

1. Jerry keeps 5 pieces of cheese in a bag. He has 4 bags. How many pieces of cheese does he have? Draw the two possible equal groups.
2. Nico placed 7 cups into two rows. How many cups did he place all in all? Draw the two possible array models.