

What is an unknown factor?

Factors are numbers multiplied by each other in order to get a product. Multiplication deals with factor pairs to get a product. On the other hand, division works to **find a missing factor that would be the one multiplied by the known factor in order to get the total or the product**. Division seeks to find the factors of a bigger number.

That means that **the known factor will always have the same factor to be pairs with in relation to the total**. The unknown factor is called the quotient.

We can read a division equation $A \div B = C$ as what could be the **value of C multiplied to B in order to get A**. A is called the dividend, B is called the divisor and C is called the quotient.

For example, **$15 \div 3$** .

What could be multiplied to 3 in order to get 15?

We know that $3 \times 5 = 15$.

We could also list down the factors of 15: 1, 3, 5, 15

We know that $1 \times 15 = 15$ and $3 \times 5 = 15$

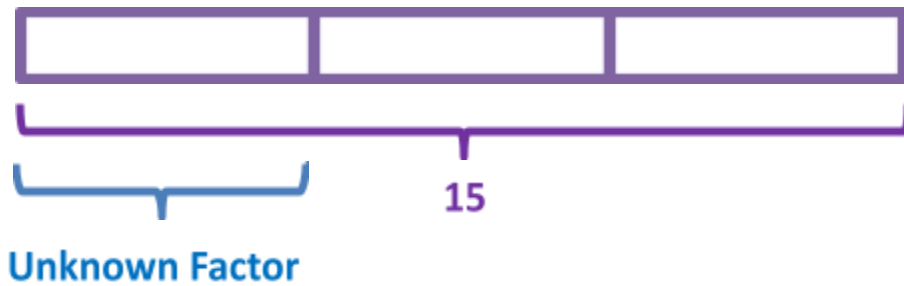
So, **the unknown factor is 5**.

Division as an Unknown Factor

For example:

$$\begin{array}{ccc} 15 & \div & 3 \\ \text{Total} & & \text{Known factor} \end{array}$$

What do you multiply to 3 to get 15?



What are the factors of 15?

1, 3, 5, 15

$$3 \times 1 = 3$$

$$3 \times 5 = 15$$

$$3 \times 15 = 45$$

We can see that 3×5 is the factor pair that produces 15.

So, 5 is the unknown factor.

Division as an Unknown Factor

List down all the factors of 12:

What do you multiply to 2 to get 12? _____

What do you multiply to 3 to get 12? _____

_____ and _____ are the unknown factors

List down all the factors of 18:

What do you multiply to 2 to get 18? _____

What do you multiply to 3 to get 18? _____

_____ and _____ are the unknown factors

Time to think

1. If the known factor is 3 and the total is 21, what is the unknown factor? How would you write its number sentence?

2. How are unknown factors related to factor pairs?

Division as an Unknown Factor

Observe the following arrays.



Write the expression for the array. _____ x _____

Using the factor pair, complete the equation: _____ ÷ 2 = _____



Write the expression for the array. _____ x _____

Using the factor pair, complete the equation: _____ ÷ 3 = _____



Write the expression for the array. _____ x _____

Using the factor pair, complete the equation: _____ ÷ 2 = _____

Division as an Unknown Factor



Write the expression for the array. _____ x _____

Using the factor pair, complete the equation: _____ ÷ 3 = _____

Fill-in the missing factor in the tape diagram.

$$27 \div 3 = \underline{\hspace{2cm}}$$



$$8 \div 2 = \underline{\hspace{2cm}}$$



Time to Think

How do you know the missing factor in a tape diagram?

Name: _____ Period: _____ Date: _____

Division as an Unknown Factor

Guided Notes

Math 3

There are 4 dots in each row. The total number of dots is 12.

What is the unknown factor? _____

Draw an array to represent it:

The tape diagram has a total of 16 dots inside and is cut into 2.

What is the unknown factor? _____

Draw a tape diagram to represent it:

There are 7 dots in each row. The total number of dots is 21.

What is the unknown factor? _____

Draw an array to represent it:

