CHAPTER 02

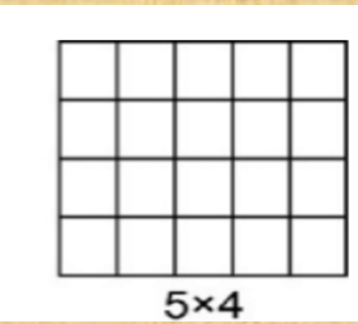
Whole Numbers

DISTRIBUTIVE PROPERTY

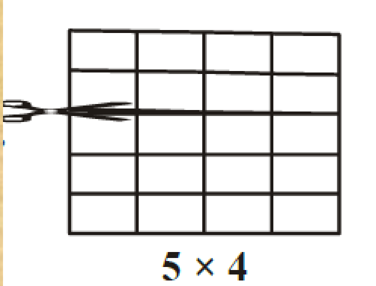
DISTRIBUTIVE PROPERTY OF MULTIPLICATION OVER ADDITION

Before we dive into this, let us do a simple activity that will help us understand the property,

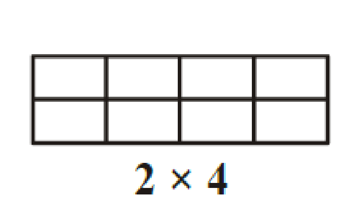
For the activity, we will need a grid paper of five rows and 4 columns and scissors.

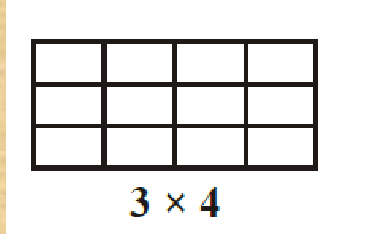


Cut the grid at the second row.

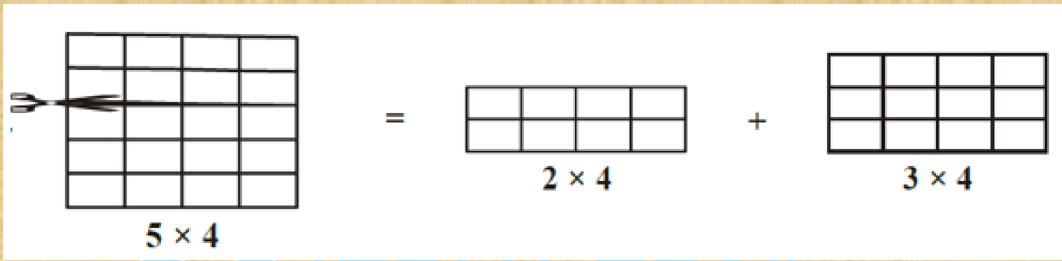


Now we get two parts of this grid paper.





We got these two pieces from the original sheet.



How can represent this as an arithmetic expression?

Let us see,

We can write the left-hand side of the equal sign also in a different way.

We get to answer 20 again.

Let us try another example,

(2 + 5) x 8 = 7 x 8 = 56

2 x 8 + 5 x 8 = 16 + 40 = 56

This property is called as distributed property of multiplication over addition. Here the number 8 is being distributed.

Example 3

Find 10 x 15 using the distributive property.

Identity for addition and multiplication.

When you add 8 and 5, you get a new whole number that is 13. The addition of two whole number gives a new whole number. But is this always so for all whole numbers?

8 + 5 = 13, a whole number.

Observe the table,

2	+	0	=	2
11	+	0	=	11
0	+	15	=	15
0	+	66	=	66

When we add zero to any other whole number in all these examples, we get the original whole number and not a new number.

Hence ZERO IS CALLED THE ADDITIVE IDENTITY OF WHOLE NUMBERS.

Similarly, how can we find the multiplicative identity? Such that if we multiply two whole numbers, we should get back the original number. You can check with these examples.

We can see 1 is the multiplicative identity for whole numbers.

Hence 1 IS THE MULTIPLICATIVE IDENTITY for WHOLE NUMBERS.

6	X	1	=	6
21	X	1	=	21
1	X	15	=	15
1	X	66	=	66