

Group theory:

Any set of elements is called a group if, among other properties, the combination between them always results in a member of the group. It is a closed society.

We will do an example with the “sum” operator

First we add the members of each grid (horizontal with verticals) and from the result we subtract the value closest to the next minimum divisible by 5 (the largest element of the group):

0, 5, 10, 15, 20, 25, 30...

Let's proceed:

+	0	1	2	3	4	5
0	0+0 → 5-0=5	0+1 → 5-1=4	0+2 → 5-2=3	...	...	...
1	1+0 → 5-1=4	1+1 → 5-2=3	...	...	...	...
2	...	...	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...
5	...	...	...	...	...	...

When the sum exceeds “5” then we move on to subtracting the next minimum multiple of 5: “10”.

Now we will use the multiplication operator:

This time the maximum number is “6”; we will apply the same laws from the previous table (remember that they are now multiples of “6”: 12, 18, 24... and we will subtract from it one divisible by 6).

X	1	2	3	4	5	6
1	... 5	... 4	... 3	... 2	... 1	... 6
2	... 4	... 2	... 6	... 4	... 2	... 6
3	... 3	... 6	... 3	... 6	... 3	... 6
4	... 2	... 4	... 6	... 4	... 2	... 6
5	... 1	... 2	... 3	... 2	... 1	... 6
6	... 6	... 6	... 6	... 6	... 6	... 6