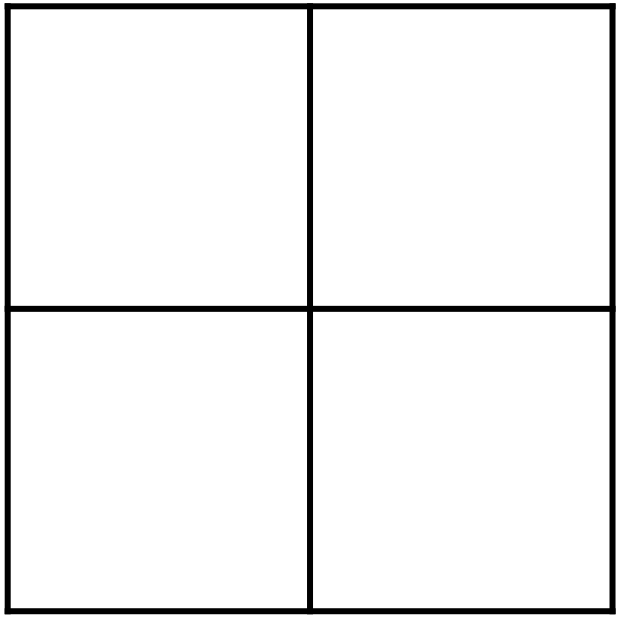
Written Multiplication ‘Napier’s Bones’

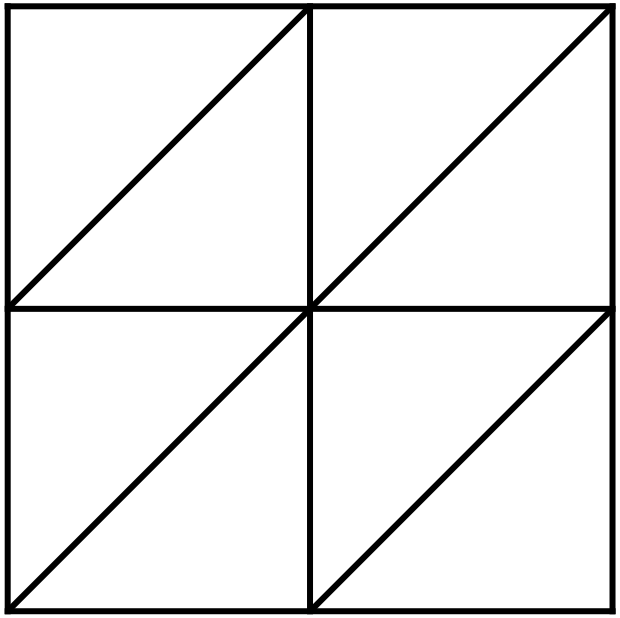
62 x 38

We start by drawing a 2 by 2 grid



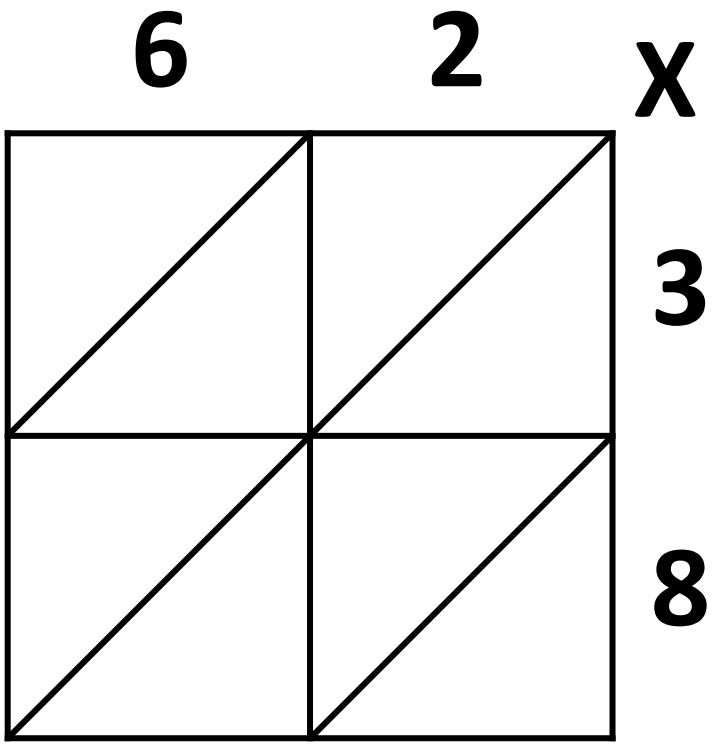
Step 2

Now add these diagonal lines



Step 3

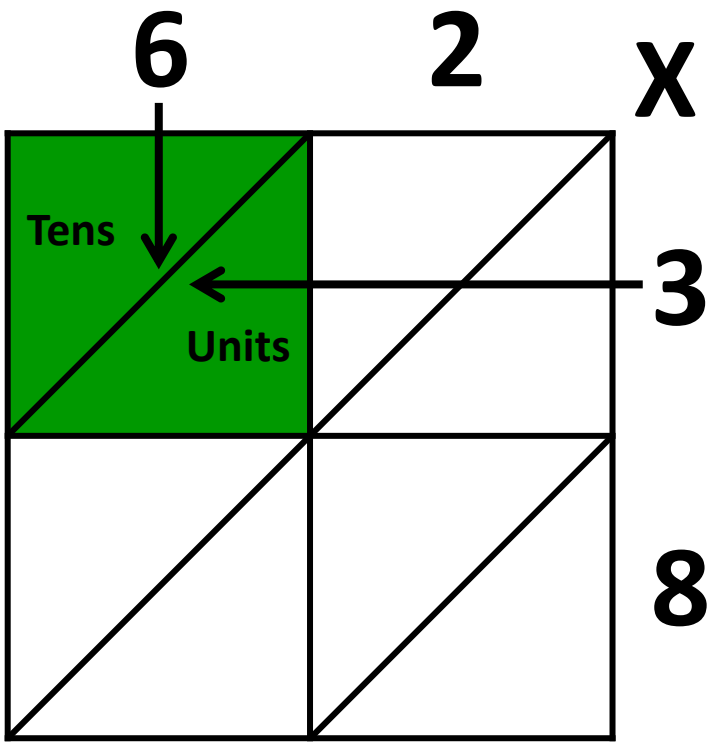
Set out the numbers along the top and down the right side of the grid.



Step 4

Now we do 6 x 3

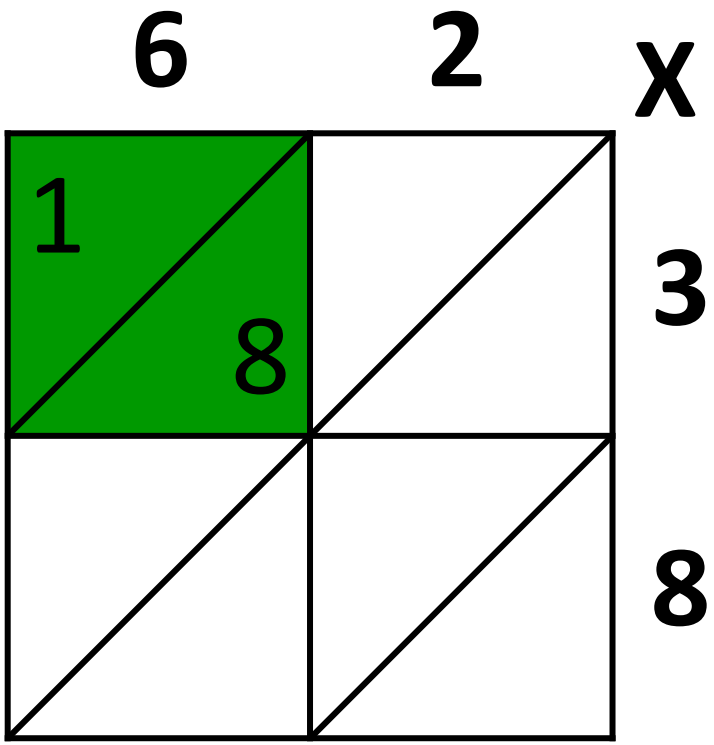
The top triangle will hold any tens, the bottom triangle any units.



Step 5

6 x 3 = 18

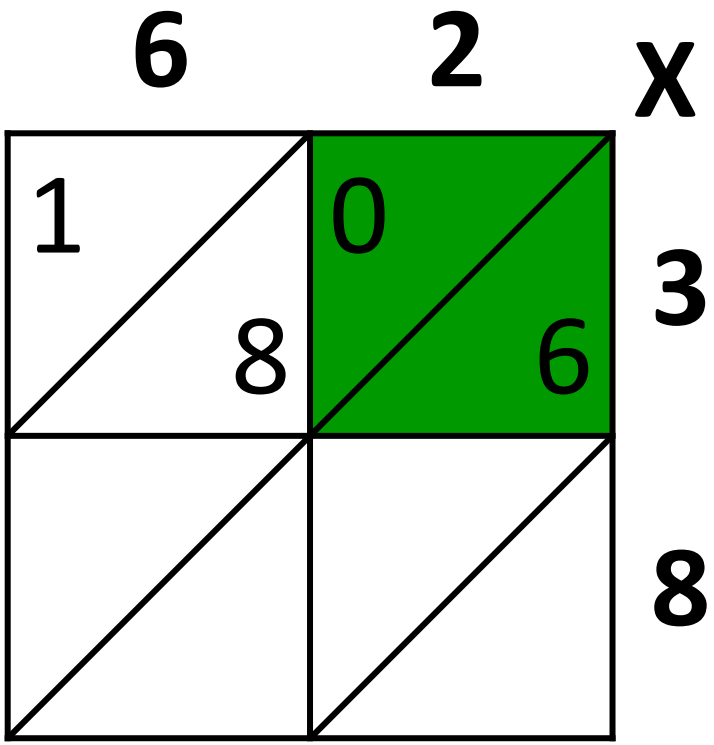
We put the 1 in the tens triangle and the 8 in the units triangle



Step 6

2 x 3 = 6

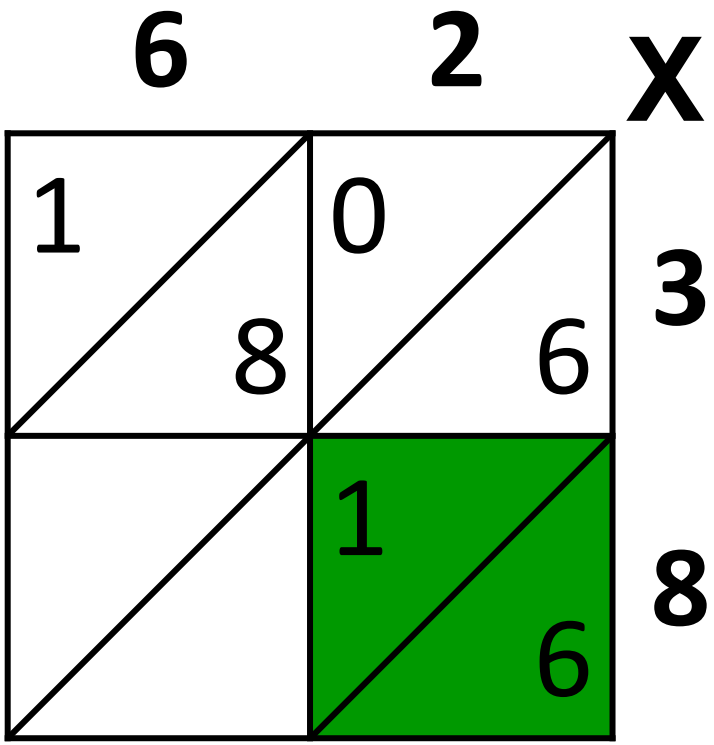
So 0 in the tens
and 6 in the units



Step 7

7 x 8 = 56

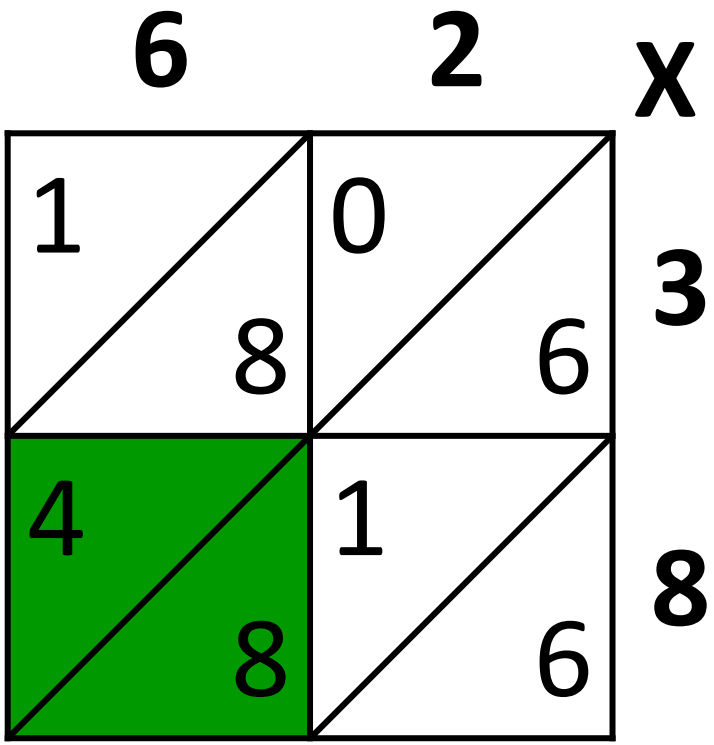
So 1 in the tens
and 6 in the units



Step 8

6 x 8 = 48

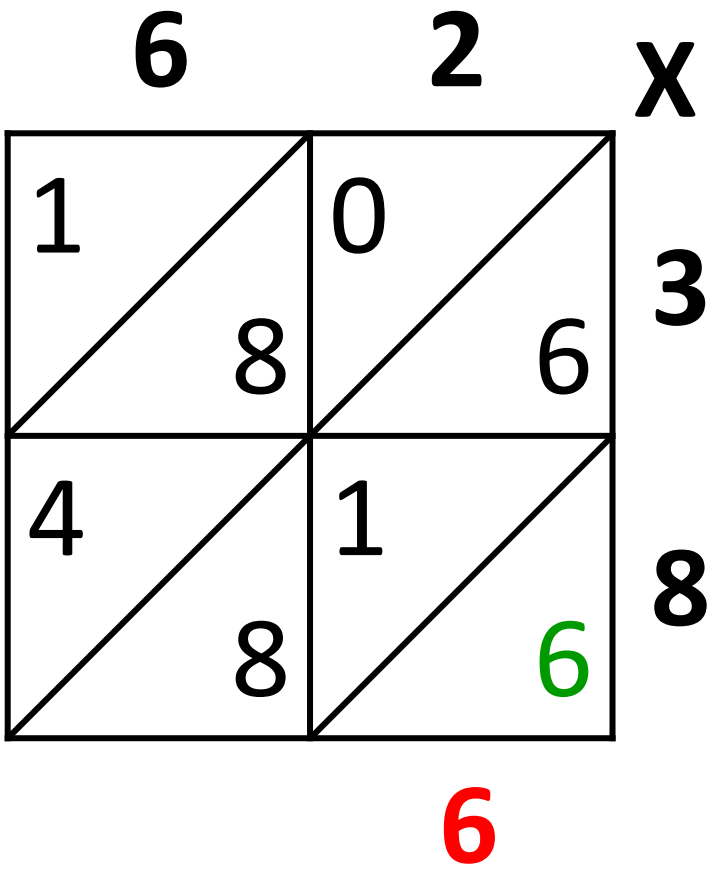
So 4 in the tens
and 8 in the units



Step 9

Now we add the diagonals. They must be done right to left like column addition.

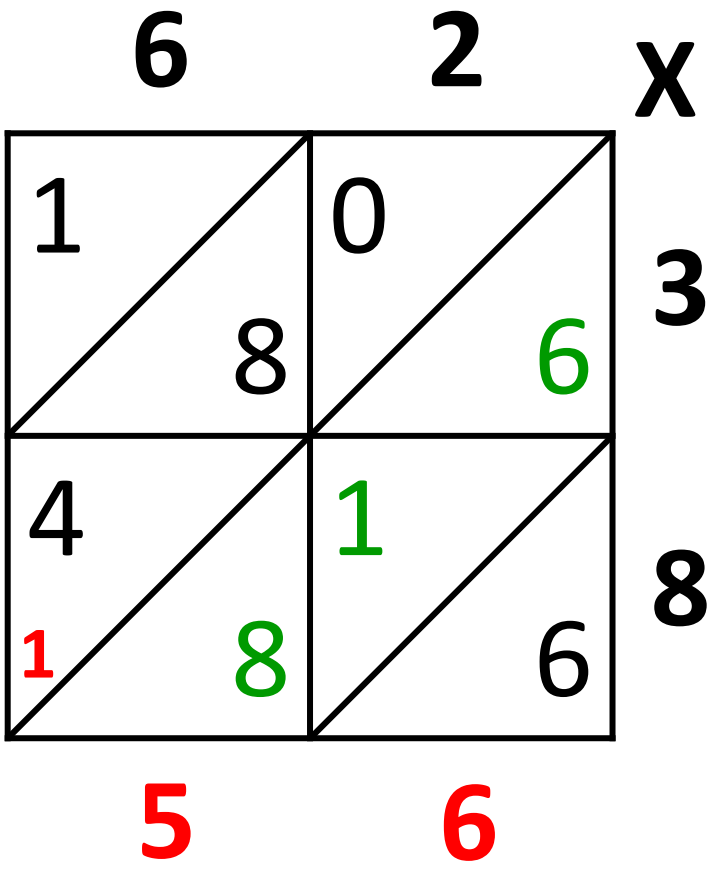
There is only a 6 in this diagonal so the total is 6



Step 10

This diagonal is 6 + 1 + 8 which equals 15

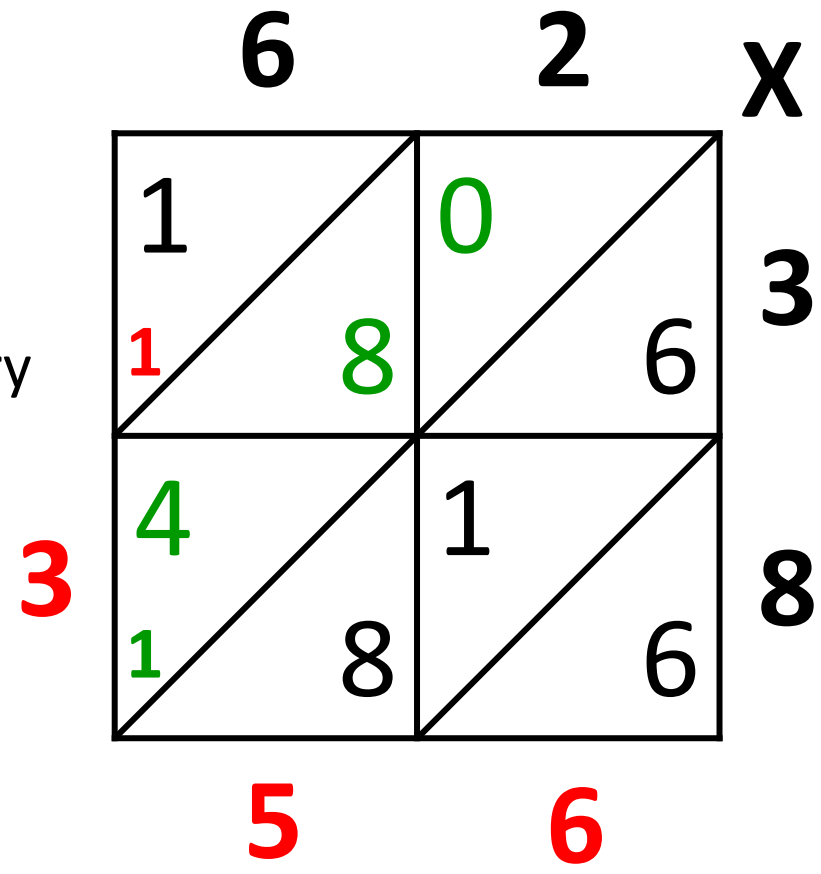
The 5 goes down and we must remember to carry any tens into the next diagonal



Step 11

This diagonal is 0 + 8 + 4 + 1 which equals 13

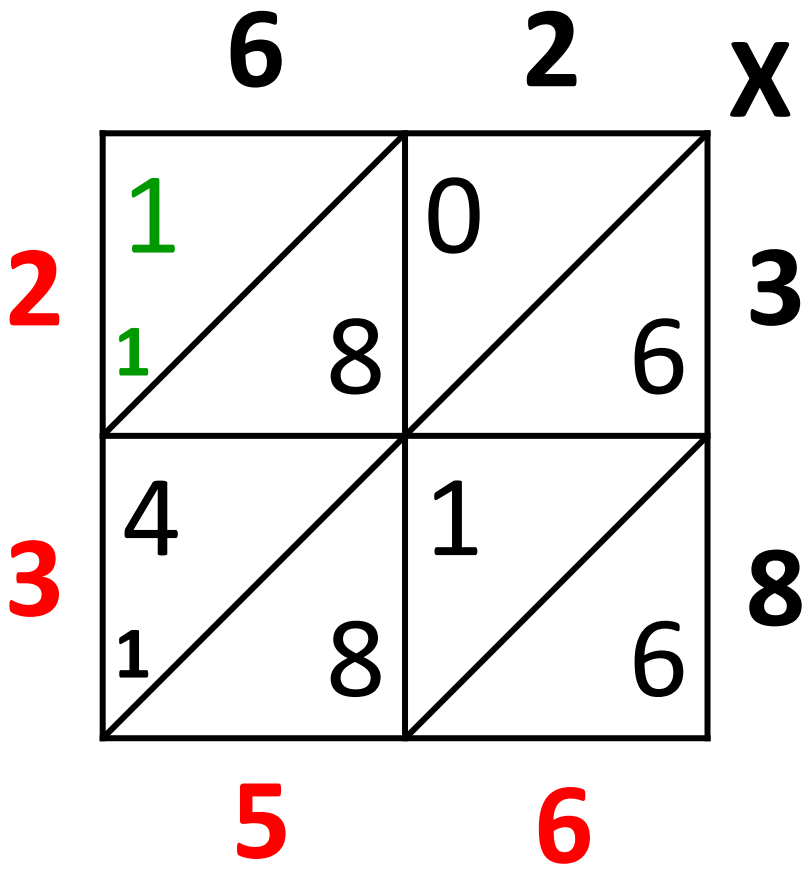
The 3 goes down and again we carry the ten into the next diagonal



Step 12

Finally we do 1 + 1 = 2

The 2 goes next to the last diagonal

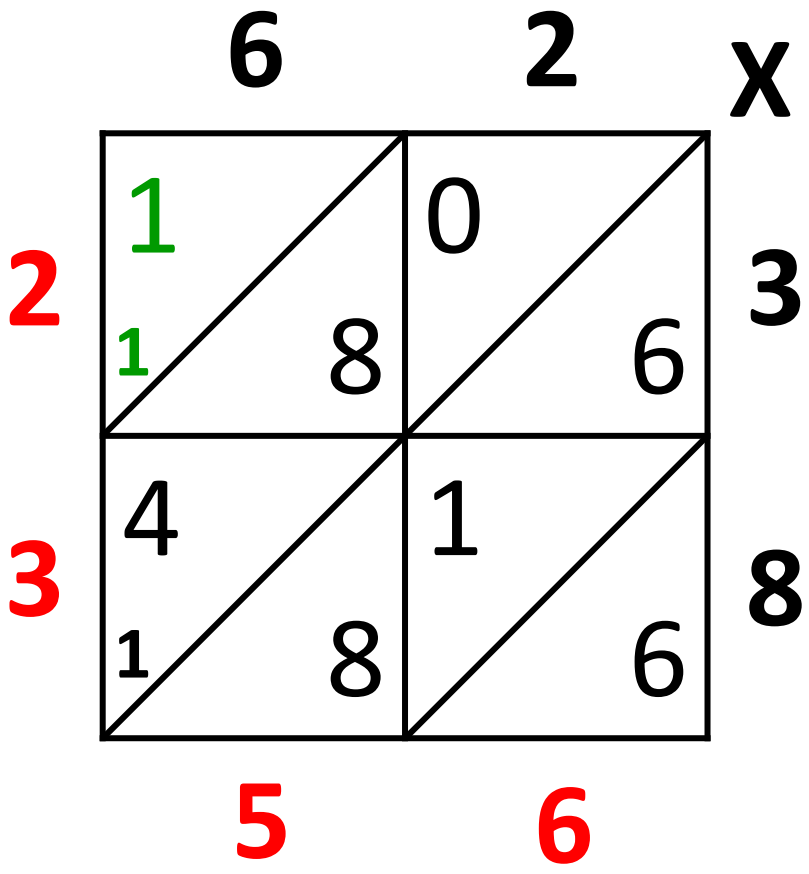


Answer

To find the answer we read down the left side and along the bottom of the grid.

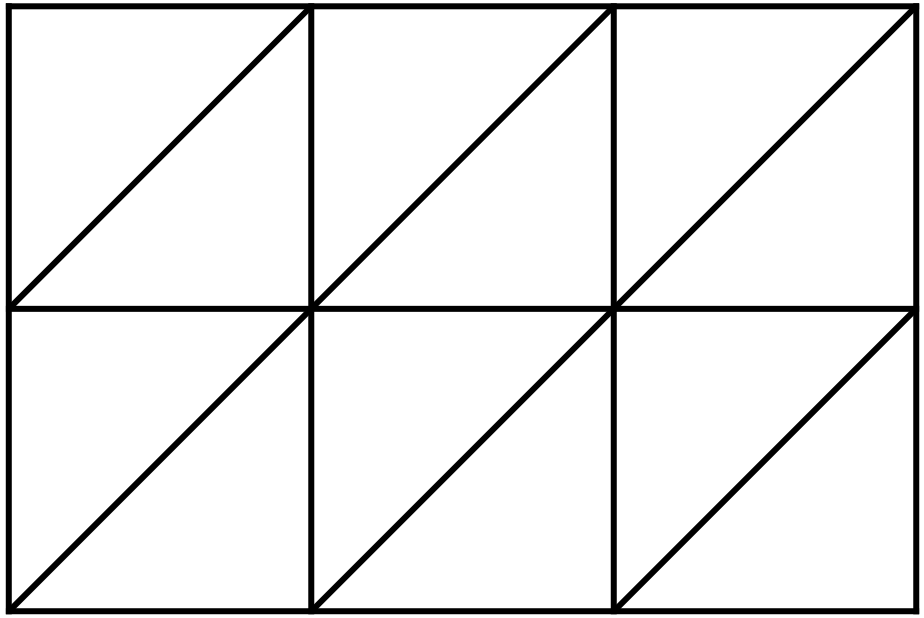
The answer is

2356



You can use this method for any multiplication
e.g. 739 x 48

This is a ‘3 by 2’ sum so draw a ‘3 by 2’ rectangle



Now carry on in the normal way!

739 x 48 = 35472