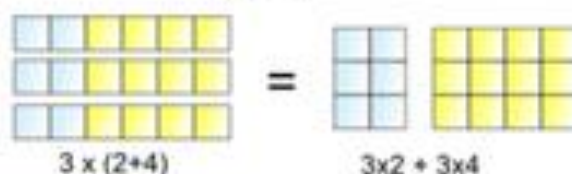


# Distributive Law

The distributive law allows us to distribute (break up) larger numbers into sums, differences and products to help with calculations.

For example:

$$\begin{aligned} 5 \times 32 &= 5 \times (30 + 2) \\ &= 5 \times 30 + 5 \times 2 \\ &= 150 + 10 \\ &= 160 \end{aligned}$$



3 lots of **(2+4)** is the same as **3 lots of 2** plus **3 lots of 4**

## USES:

Sometimes it is easier to break up a difficult multiplication:

Example: What is  $6 \times 204$  ?

$$6 \times 204 = 6 \times 200 + 6 \times 4 = 1,200 + 24 = 1,224$$

Or to combine:

Example: What is  $16 \times 6 + 16 \times 4$ ?

$$16 \times 6 + 16 \times 4 = 16 \times (6+4) = 16 \times 10 = 160$$

We can use it in subtraction too:

Example:  $26 \times 3 - 24 \times 3$

$$26 \times 3 - 24 \times 3 = (26 - 24) \times 3 = 2 \times 3 = 6$$

We could use it for a long list of additions, too:

Example:  $6 \times 7 + 2 \times 7 + 3 \times 7 + 5 \times 7 + 4 \times 7$

$$6 \times 7 + 2 \times 7 + 3 \times 7 + 5 \times 7 + 4 \times 7 = (6+2+3+5+4) \times 7 = 20 \times 7 = 140$$


Using your knowledge of the column method to multiply, solve the following questions by presenting your answer showing your understanding of 'distributive law':

**Example:**

$$\begin{aligned} 563 \times 5 &= (500 \times 5) + (60 \times 5) + (3 \times 5) \\ &= 2500 + 300 + 15 \\ &= 2815 \end{aligned}$$


1.  $243 \times 6 =$
2. 6 lots of 4597 is
3. 5978 times 9 equals
4. 46 multiplied by 24 equals
5.  $624 \times 57 =$
6. Alisha went on a shopping spree and bought 12 pairs of shoes. Each pair cost £55. How much did she spend?
7. Brandon goes to watch the football 17 times a month. How many times does he watch the football over 23 months?
- 8.

10. Jada has answered  $84 \times 76$



$$\begin{array}{r} 84 \\ \times 76 \\ \hline 4824 \\ 58280 \\ \hline 6364 \end{array}$$

Robert says:



The answer should be 6,384, not 6,364

Who is correct?  
Explain how you know.

Explain your findings by showing your working out using 'distributive law'.