

COMMUTATIVE LAW of MULTIPLICATION

This means numbers can be multiplied in any order.

$$3 \times 10 \times 5 = 3 \times 5 \times 10$$

We can rearrange the order in which we multiply to make combinations that are easier to multiply.

Is it easier to solve $3 \times 10 \times 6$ or is it easier to solve $3 \times 6 \times 10$

X	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

$$12 \times 120 =$$

$$(10+2) \times 120$$

$$(\text{ } \times \text{ }) + (\text{ } \times \text{ })$$

$$\text{ } + \text{ }$$

$$22 \times 110 =$$

$$(20+2) \times 110$$

$$(\text{ } \times \text{ }) + (\text{ } \times \text{ })$$

$$\text{ } + \text{ }$$

$$12 \times 155 =$$

$$(10+2) \times 155$$

$$(\text{ } \times \text{ }) + (\text{ } \times \text{ })$$

$$\text{ } + \text{ }$$

$$22 \times 136 =$$

$$(20+2) \times 136$$

$$(\text{ } \times \text{ }) + (\text{ } \times \text{ })$$

$$\text{ } + \text{ }$$

$$70 \times 6 =$$

$$200 \times 6 =$$

$$40 \times 30 =$$

$$6 \times 20 =$$

$$5 \times 40 =$$

$$40 \times 50 =$$

$$30 \times 7 =$$

$$40 \times 8 =$$

$$80 \times 9 =$$

$$60 \times 3 =$$

$$400 \times 6 =$$

$$600 \times 4 =$$

DISTRIBUTIVE LAW of MULTIPLICATION

Groups of the same number can be split into parts.

XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

$$5 \times 6 + 1 \times 6 = 6 \times 6$$

$$(5 \text{ groups of } 6) + (1 \text{ groups of } 6) = 6 \text{ groups of } 6$$

$$(6 \text{ groups of } 6) \text{ is the same as } (5 \text{ groups of } 6) + (1 \text{ groups of } 6)$$

$$(5 \text{ groups of } 6) + (1 \text{ groups of } 6) = 6 \text{ groups of } 6$$

$$\text{so } \dots\dots\dots 6 \times 6 = (5 \times 6) + (1 \times 6)$$

$$22 \times 155$$

$$22 \text{ groups of } 155 = (20 \text{ groups of } 155) + (2 \text{ groups of } 155)$$

$$22 \times 155 =$$

$$(20 + 2) \times 155 =$$

$$(20 \times 155) + (2 \times 155)$$

$$= 3100 + 310$$

$$= 3410$$

$$2 \times 100 + 2 \times 50 + 2 \times 5$$

$$200 + 100 + 10$$

$$2 \times 155 = 310$$

$$20 \times 155 = 3100$$

Extra Working Out