

NUMBER

LONG MULTIPLICATION → 2 methods

① STANDARD METHOD

$$\begin{array}{r} 31 \\ 12 \times \\ \hline 62 \leftarrow 2 \times 31 \\ + 310 \leftarrow 10 \times 31 \\ \hline 372 \end{array}$$

then add

② GRID METHOD

break 31 into 30 and 1

	30	1	
12 becomes 10	300	10	
10 becomes 2	60	2	
	<hr/>		
	360 + 12		= 372

lines through the grid
then add up

SHORT DIVISION

$$952 \div 4$$

$$\begin{array}{r} 238 \\ 4 \overline{) 952} \end{array}$$

- $9 \div 4 = 2$ r 1 the 1 carries to in front of the 5
- Now $15 \div 4 = 3$ r 3 3 carries to in front of the 2
- Finally $32 \div 4 = 8$

can be done with much bigger numbers eg

$$7980 \div 15$$

start by writing out 15x table

$$\begin{array}{r} 532 \\ 15 \overline{) 7980} \end{array}$$

- 15 can't divide 7 so carry the 7 to make 79
 $79 \div 15 = 5$ r 4
- $48 \div 15 = 3$ r 3
- $30 \div 15 = 2$

$$\begin{array}{r} 15 \\ 30 \\ 45 \\ 60 \\ 75 \\ 90 \end{array}$$

BIDMAS

order of operations

- B** rackets
- I** ndices such as powers & roots
- D** ivision
- M** ultiplication
- A** ddition
- S** ubtraction

Multiplication is before addition
so we do 3×2 first

$$5 + 3 \times 2 = 11$$

$$5 + 6 = 11$$

Brackets are before multiplication
so we do inside brackets first

$$3 \times (2 + 4) = 18$$

$$3 \times 6 = 18$$

BRACKETS

When there is a number outside a bracket there is an invisible \times sign between that number and the bracket

$$2(5-1) \rightarrow 2 \times (4) = 8$$