

Prime numbers

A prime number is a whole number greater than 1 with no divisors except 1 and itself.

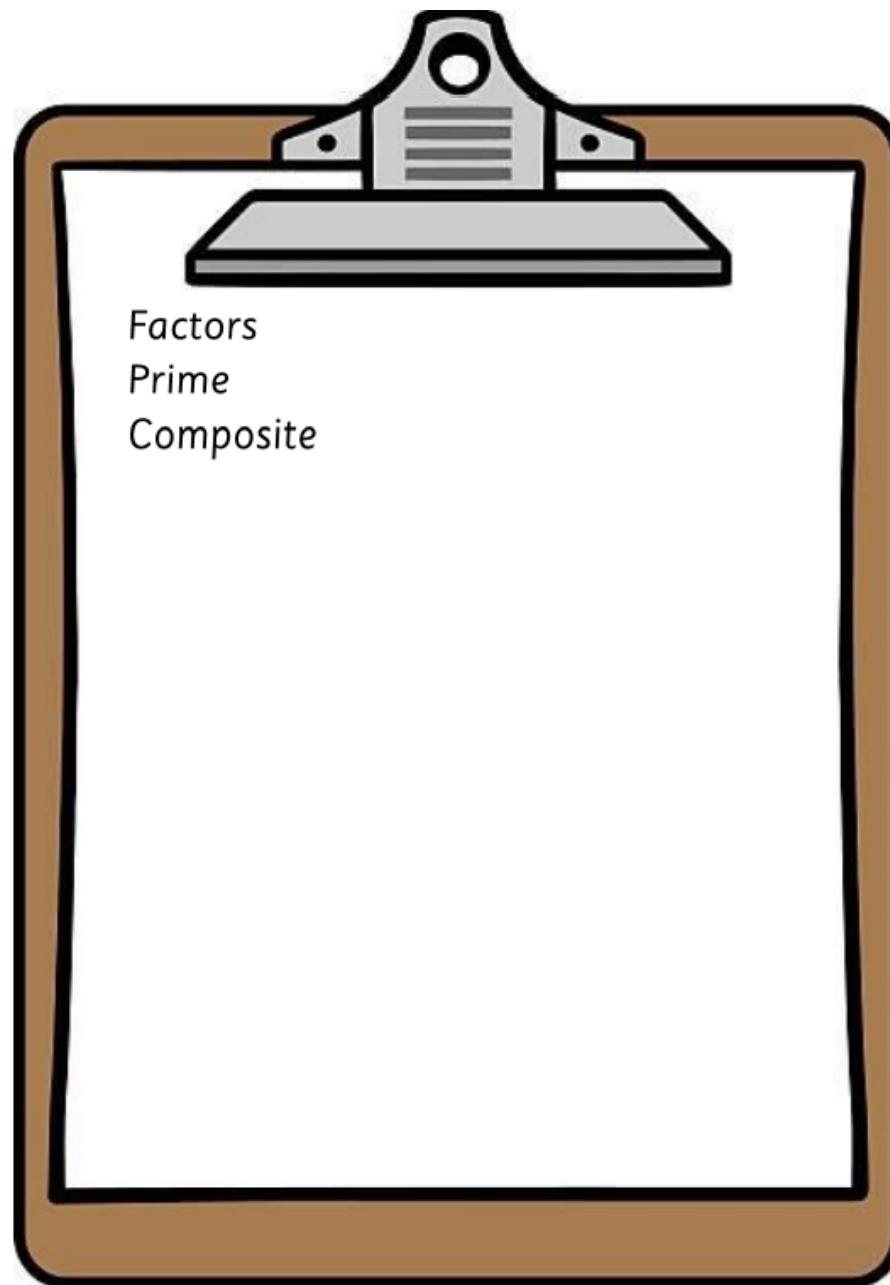
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Top tips:

2 is the only even prime number.

There are no prime numbers that end in 5, except for 5.

The digits can't add up to 3, except 3.



Use short multiplication (decimals)

$$8.53 \times 6$$

$$\begin{array}{r} 853 \\ \times \quad 6 \\ \hline 8 \\ \hline 1 \end{array}$$

1) Multiply the top ones digit by the multiplier. Carry the extra digit if needed.

$$\begin{array}{r} 853 \\ \times \quad 6 \\ \hline 18 \\ \hline 31 \end{array}$$

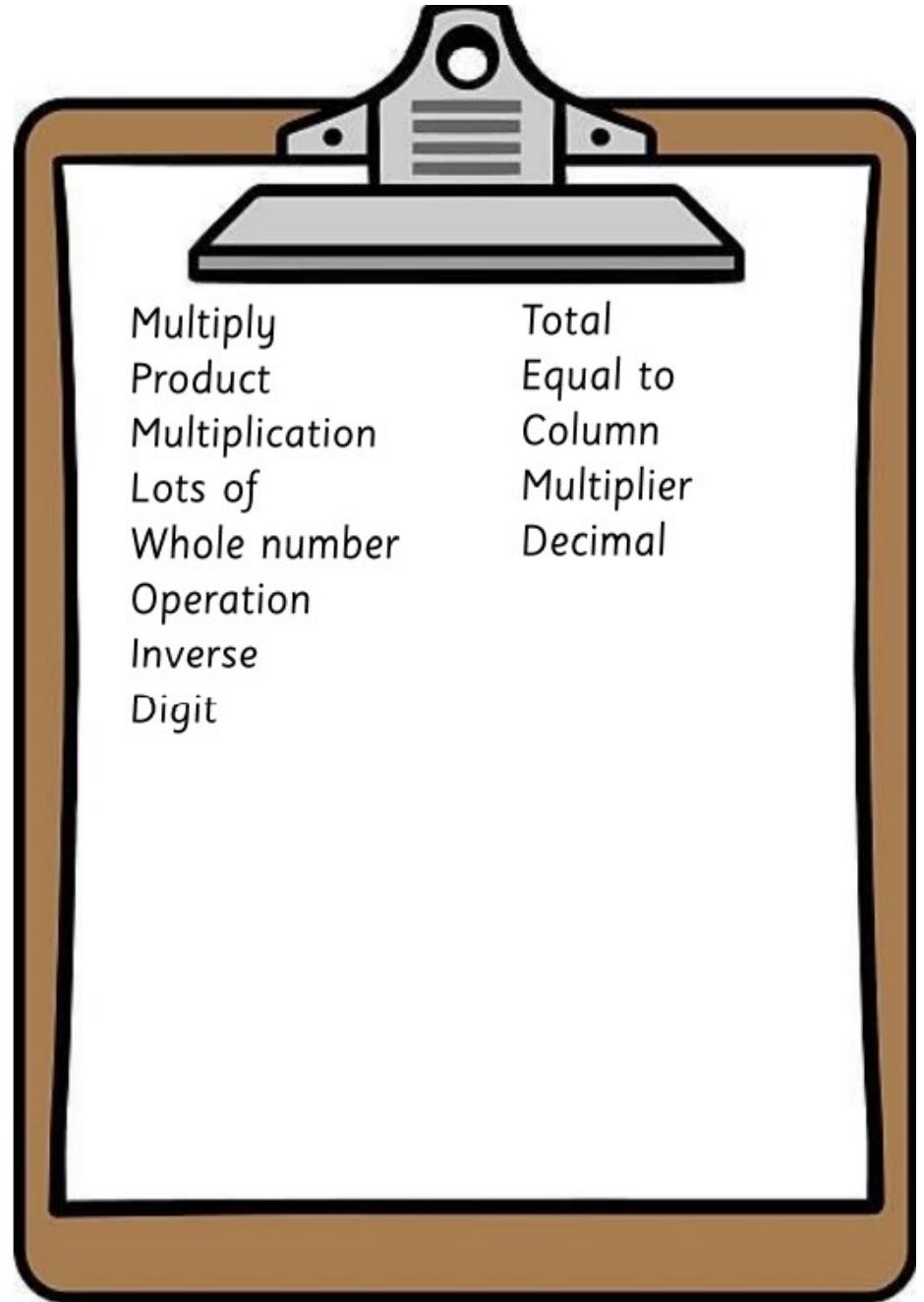
2) Multiply the top tens digit by the multiplier. Add any carried digits. Carry the extra digit if needed.

$$\begin{array}{r} 853 \\ \times \quad 6 \\ \hline 18 \\ \hline 5118 \\ \hline 31 \end{array}$$

3) Multiply the top hundreds digit by the multiplier. Add any carried digits.

$$853 \times 6 = 5118$$

$$8.53 \times 6 = 51.18$$



Use long multiplication

$$32 \times 45$$

- 1) Multiply the top ones digit by the bottom ones. 2) Multiply the top tens digit by the bottom ones.

$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

$2 \times 5 = 10$
Carry the one.

$$\begin{array}{r} 10 \\ \hline \end{array}$$

$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

$$\begin{array}{r} 160 \\ \hline \end{array}$$

- 3) Add a zero below the ones digits. 4) Multiply the top ones digit by the bottom tens.

$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

This shows that you are multiplying by 40 rather than 4

$$\begin{array}{r} 160 \\ \hline \end{array}$$

$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

$4 \times 2 = 8$

$$\begin{array}{r} 160 \\ 80 \\ \hline \end{array}$$

- 5) Multiply the top tens digit by the bottom tens. 6) Add the two answers together.

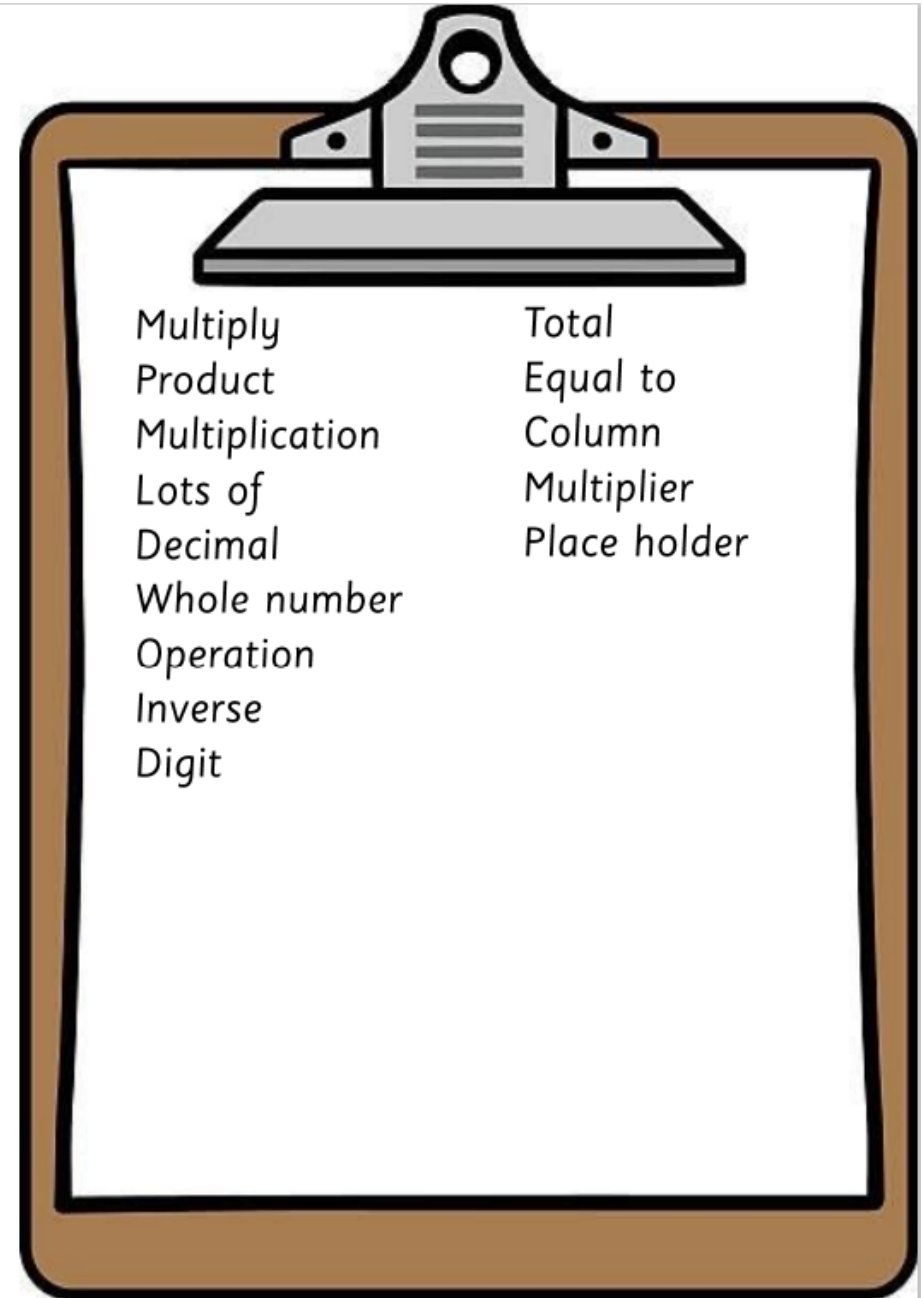
$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

$4 \times 3 = 12$

$$\begin{array}{r} 160 \\ 1280 \\ \hline \end{array}$$

$$\begin{array}{r} \times 32 \\ 45 \\ \hline \end{array}$$

$$\begin{array}{r} 160 \\ 1280 \\ 1440 \\ \hline \end{array}$$



Use short division with remainders

$$24 \div 4 = 6$$

Labels: divisor (4), quotient (6), dividend (24)

$$625 \div 4 =$$

$$\begin{array}{r} 156 \\ 4 \overline{) 625} \\ \underline{4} \\ 22 \\ \underline{20} \\ 25 \\ \underline{20} \\ 5 \end{array}$$

1) Starting from the left, see how many times the divisor will go into each digit of the dividend

$$\begin{array}{r} 156 \text{ r } 1 \\ 4 \overline{) 625} \\ \underline{4} \\ 22 \\ \underline{20} \\ 25 \\ \underline{20} \\ 5 \end{array}$$

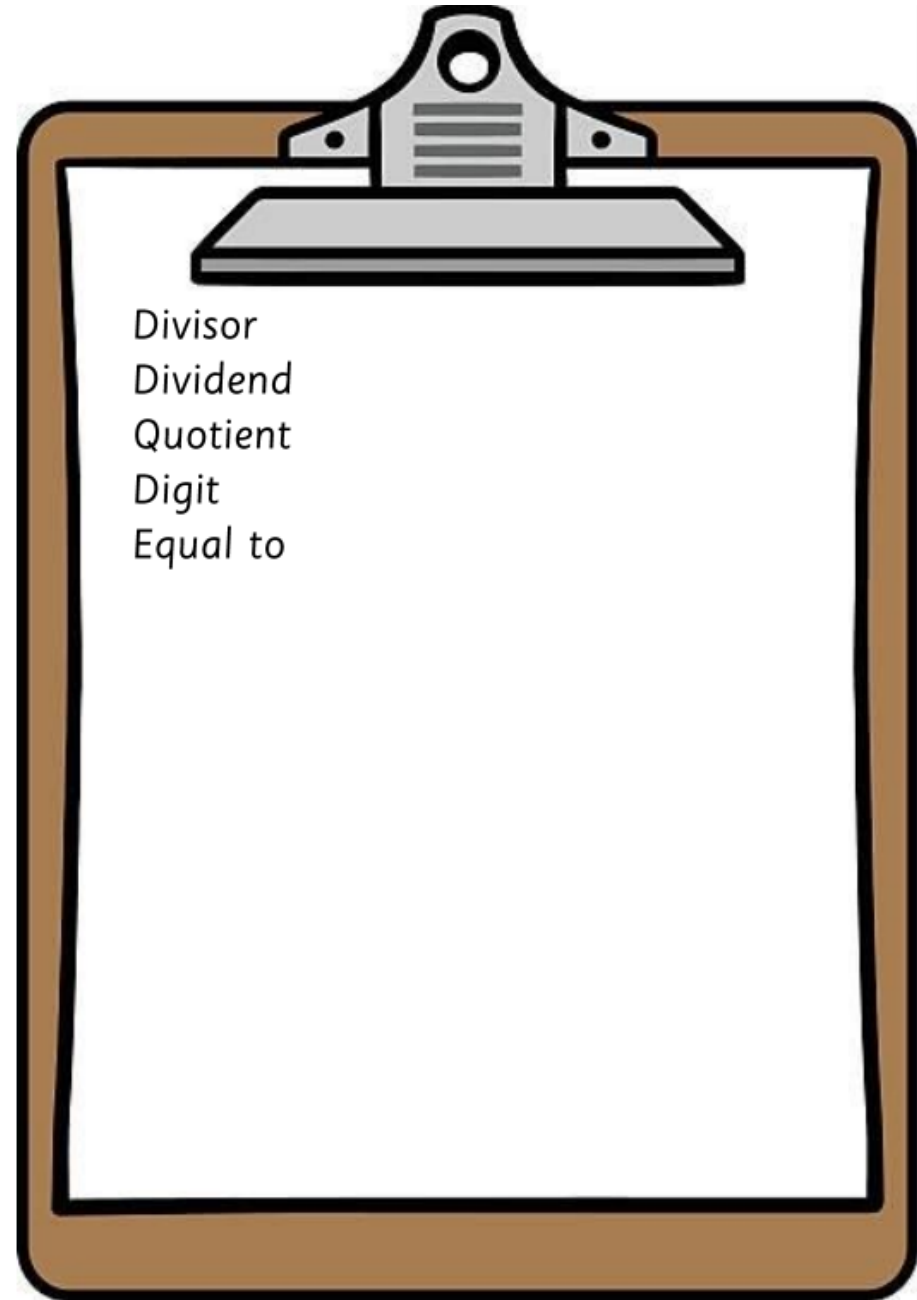
2) When you reach the last digit, if there is a remainder, add a 'r' and the number that is left over.

You can check by doing short multiplication.

$$156 \times 4 = 624$$



Add the remainder = 625



Finding multiples and common multiples

A multiple is a number which can be divided by another number without a remainder.

Multiples of 5 = 5, 10, 15, 20, 25, 30

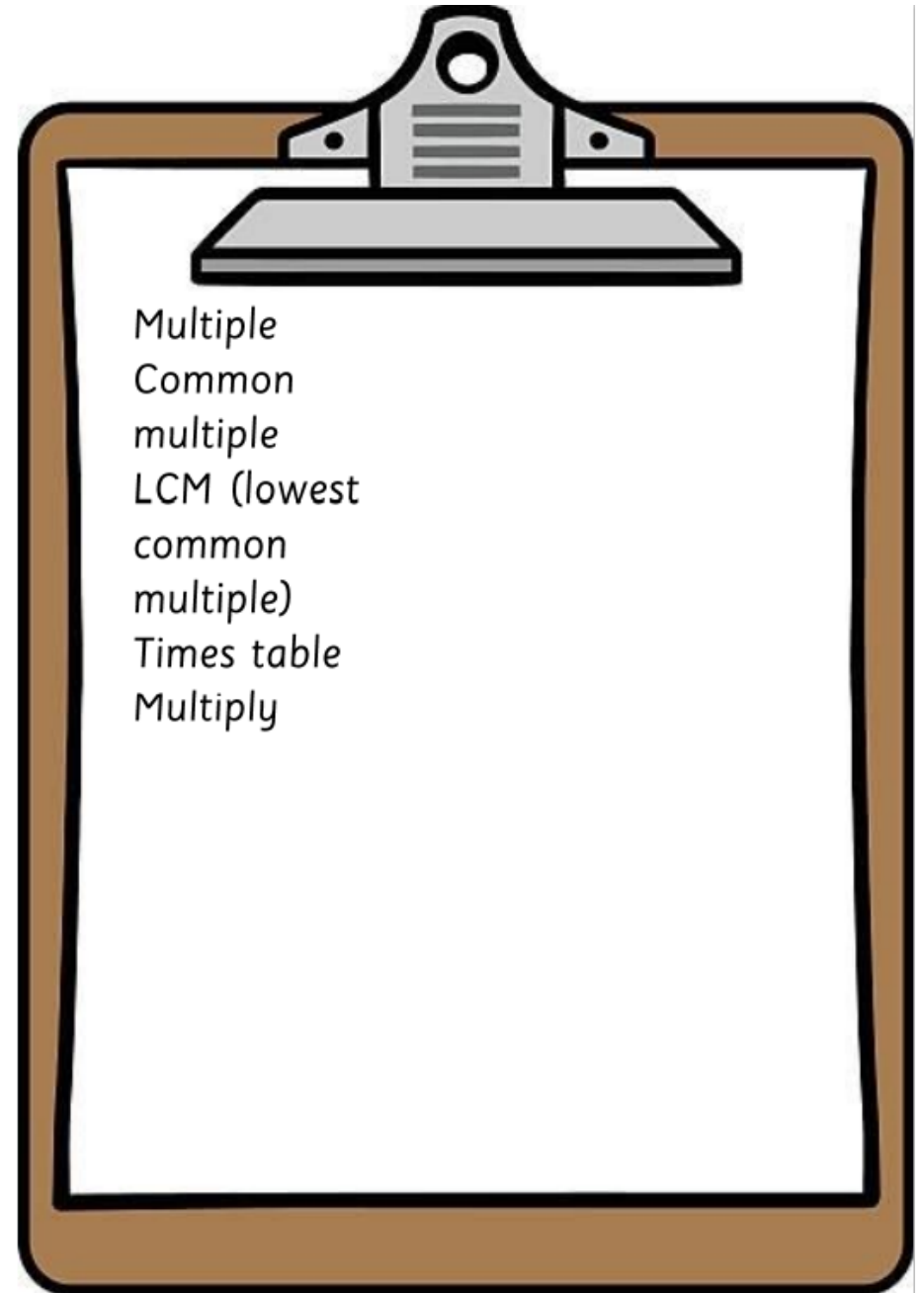
Common multiples

- 1) Write out multiples of the first number.
- 2) Write out multiples of the next number.
- 3) Look for the numbers that appear in both. These will be the common multiples.

Multiples of 3: 3, 6, 9, 12, 18, 21, 24

Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32

12 and 24 appear in both sets so are common multiples of 3 and 4.



Finding factors and common factors

Factors are whole numbers that can multiply by other whole numbers to make the product.

3×6 ↖ product

1 x 3 6
2 x 1 8
3 x 1 2
4 x 9
6 x 6

1) Starting with '1 x ___', find pairs of numbers which multiply to make the product.

2) List your factors in ascending order, ignoring any duplicates.

1, 2, 3, 5, 6, 9, 12, 18, 36

Common factors

1) Find the factor pairs of both numbers.

4×8	3×6
$1 \times 4 \ 8$	$1 \times 3 \ 6$
$2 \times 2 \ 4$	$2 \times 1 \ 8$
$3 \times 1 \ 6$	$3 \times 1 \ 2$
$4 \times 1 \ 2$	4×9
6×8	6×6

2) Circle the numbers that appear in both lists.

Common factors of 2 4 and 3 6

1, 2, 3, 4, 6, 12

