

Memory Aid Number Theory + Decimals

Place Value Chart

Thousands	Tens of thousands	Thousands	Hundreds	Tens	ones	.	Tenths	Hundredths	Thousands	Ten Thousandths
4	6	3	8	2	3	.	6	7	2	6

Standard form : How we see numbers
ex: 456, 879.34

Expanded form : $879.34 = (8 \times 100) + (7 \times 10) + (9 \times 1) + (3 \times 0.1) + (4 \times 0.01)$

Face Value : The number $\textcircled{7}$ i.e 327.01

Place Value : The place value \textcircled{ones}

Total Value : Face value \times place value $\textcircled{7}$

Factor : A number that divides equally into another number. Factors are less than or equal to the number.

Prime Number : A number with exactly two different factors, 1 and itself

Primes to 100 : 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Composite Number : A number with more than 2 different factors.

Divisibility Rules : numbers are divisible by:

2 if ends in 0, 2, 4, 6, 8

3 if sum of digits is divisible by 3

4 if last two digits are divisible by 4

5 if it ends in 0, 5

6 if it is divisible by 2 and 3

8 if the last three digits are divisible by 8

9 if the sum of digits is divisible by 9

10 if it ends in 0

12 if it is divisible by 3 and 4

Rounding Up : if the digit to the right of the one you are rounding is 5 or more.

Keep the same : if the digit to the right of the one you are rounding is less than 5.

Round 3273 to hundred = 3300

Round 6.931 to hundredth = 6.93

Greatest Common Factor (GCF)

The highest number that divides exactly into two or more numbers.

use when you need to break numbers down into equal sized groups.

Lowest Common Multiple (LCM)

The smallest number that is a multiple of two or more numbers.

use when you need to find when different things will happen together.

Find GCF or LCM

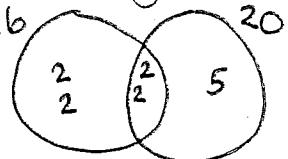
Find the GCF and the LCM of 16 + 20

Step 1 : Factor staircases for both numbers

$$\begin{array}{r} 2 \\ \hline 2 | 16 \\ 2 | 8 \\ 2 | 4 \\ \hline 2 | 2 \end{array}$$

$$\begin{array}{r} 2 \\ \hline 2 | 20 \\ 2 | 10 \\ 5 | 5 \\ \hline 1 | 1 \end{array}$$

Step 2 : Place number in the Venn diagram



Step 3:

For GCF : multiply numbers from common area (centre)
 $2 \times 2 = 4$

For LCM : multiply all the numbers you placed in the Venn diagram

$$2 \times 2 \times 2 \times 2 \times 5 = 80$$

Exponents : Show repeated multiplication

For example $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 2^5$



BEDMAS

B — do 1st

E — do 2nd

D } M } do 3rd as they appear left to right

A } S } do 4th as they appear left to right

i.e. $3^2 \div 3 + 2 \times (\underline{12-10})^2$

B $\underline{3^2 \div 3 + 2 \times 2^2}$

E $\underline{9 \div 3 + 2 \times 4}$

D $\underline{3 + 2 \times 4}$

M $\underline{3 + 8}$

A (11)

Forms: Exponential : 2^5

Expanded : $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

Standard : 32

Special Exponents

Exponent of 0 : Any base with an exponent of 0 = 1

$$3^0 = 1$$

$$4^0 = 1$$

Exponent of 1 : Any base with an exponent of 1 = the base number.

$$4^1 = 4$$

$$5^1 = 5$$

Decimals

$$\begin{array}{r} + \\ \text{Line up decimals} \quad 0.58 + 0.373 \\ \hline 0.580 \\ + 0.373 \\ \hline 0.953 \end{array}$$

$$\begin{array}{r} - \\ \text{Line up decimals} \quad 7.89 - 4.712 \\ \hline 7.890 \\ - 4.712 \\ \hline 3.178 \end{array}$$

$$X \quad 7.28 \times 5.3$$

$$\begin{array}{r} 7.28 \quad (2) \\ \times 5.3 \quad (1) \\ \hline 2184 \\ 6400 \\ \hline 8.584 \end{array}$$

- do not line up decimals
- answer has total number of decimal places ($2+1=3$)

$$38.584$$

* You can also estimate to know where to place the decimal

$$7 \times 5 = 35$$

Decimal by whole number	Decimal by decimal
$\begin{array}{r} 4.025 \\ 56) 225.400 \\ - 224 \downarrow \\ \hline 14 \\ 0 \downarrow \\ \hline 140 \\ - 112 \downarrow \\ \hline 280 \\ 280 \downarrow \\ \hline 0 \end{array}$	$\begin{array}{r} 4.3) 201.34 \\ \hline 46.8 \\ - 172 \downarrow \\ \hline 292 \\ - 258 \downarrow \\ \hline 344 \\ 344 \downarrow \\ \hline 0 \end{array}$