PLACE VALUE IN DECIMALS

Some quantities change by whole number amounts, such as the number of people in a room, but there are many quantities that increase or decrease continuously, such as the time of a runner.

We need to know how to deal with these decimal numbers.

The number 428.357 can be subdivided as follows:

$428.357 = 4\times100 + 20\times10 + 8\times1 + 3\div10 + 5\div100 + 7\div1000$

Hundreds Tens Units Tenths Hundredths Thousandths

We say that the value of 3 in that number is $3\div10$ or $\frac{3}{10}$

VALUE AND PLACE VALUE

The value of 8 in the number 12.85 is 8 ÷ 10

The place value of 8 in the number 12.85 is tenths.

The value of 8 in the number 6.1287 is 8 ÷ 1000

The place value of 8 in the number 6.1287 is hundredths.

PLACE VALUE IN DECIMALS

This is summarised in the following table:

Hundreds	Tens	Ones	•	Tenths	Hundredths	Thousandths
4	2	8	•	3	5	7
4×100	2×10	8×1	•	$3 \times \frac{1}{10}$	$5 \times \frac{1}{100}$	$7 \times \frac{1}{1000}$
400	20	8	•	$\frac{3}{10}$	$\frac{5}{100}$	$\frac{7}{1000}$
← whole numbers			decimal point		fractions →	

ORDERING DECIMALS

Example: 3.72, 7.23, 2.73, 2.37, 7.32, 3.27

To order decimal in increasing order, we first put first the ones with the lower units, then we look at the digit with lower place value, etc.

2.37, 2.73, 3.27, 3.72, 7.23, 7.32

RECURRING DECIMALS

Recurring decimals are decimals with a repeated pattern.

A dot, dots or a bar above a number or numbers indicates a repeated pattern.

$$\frac{1}{3} = 0.33333\ldots = 0.\dot{3}$$

$$\frac{13}{11} = 1.181818\ldots = 1.\dot{1}\dot{8} \quad \text{or} \quad 1.\overline{18}$$

$$\frac{12}{7} = 1.714285714285\ldots = 1.\dot{7}14285\dot{} \quad \text{or} \quad 1.\overline{714285}$$