

THE DECIMAL POINT

The decimal point separates numbers that are equal to or greater than one and numbers that are less than one.

Hundreds of Thousands	Tens of Thousands	Thousands	Hundreds	Tens	Units		Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths
100,000	10,000	1,000	100	10	1		$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$
		1	2	3	4	.	5	6	7		

Multiplying by 10, 100 and 1000

This will increase the number. Relative to the decimal point, multiplying by 10 moves the number 1 place to the left, multiplying by 100 moves the number 2 places to the left, multiplying by 1000 moves the number 3 places to the left.

Dividing by 10, 100 and 1000

This will decrease the number, Relative to the decimal point, dividing by 10 moves the number 1 place to the right, dividing by 100 moves the number 2 places to the right, dividing by 1000 moves the number 3 places to the right.



$\frac{1}{10}^{\text{th}}$
of the unit
0.1

$\frac{1}{100}^{\text{th}}$
of the unit
0.01

$\frac{1}{1000}^{\text{th}}$
of the unit
0.001

Example 45732.679

Hundreds of Thousands	Tens of Thousands	Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths
100,000	10,000	1,000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$
						0.1	0.01	0.001	0.0001	0.00001
	4	5	7	3	2	6	7	9		

$$\begin{aligned}
 &45732.679 \\
 &= \\
 &4 \times 10,000 \\
 &+ \\
 &5 \times 1,000 \\
 &+ \\
 &7 \times 100 \\
 &+ \\
 &3 \times 10 \\
 &+ \\
 &2 \times 1 \\
 &+ \\
 &6 \times \frac{1}{10} \\
 &+ \\
 &7 \times \frac{1}{100} \\
 &+ \\
 &9 \times \frac{1}{1,000}
 \end{aligned}$$

When we add all the individual numbers above are added we get.

	40000.000
	05000.000
	00700.000
	00030.000
	00002.000
	00000.600
	00000.070
	00000.009
	45732.679

Can you see the position of each digit matters; its value is dependent on its position relative to the decimal point. Note sometimes the decimal point is not shown if you are only dealing with whole (integer) numbers, like 45, 364, 1007 etc. but the decimal point is still there (just not shown) and could be added, like 45.0, 364.0, 1007.0 etc.

Write some of your own numbers in the table below and convince yourself of the place value of each digit.

Hundreds of Thousands	Tens of Thousands	Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths
100,000	10,000	1,000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$
						0.1	0.01	0.001	0.0001	0.00001