

Exponent and Mantissa

The negative number -123456.7 can be written as 1.234567×10.0000

Since $10.000 = 10$ to the 5th power, we can imply the 10 and indicate only the exponent noted 05

So we can write -123456.7 as $-1.234567 \ 05$

We call -123456.7 the **mantissa** and 05 the **exponent**.

The numeral by which the mantissa number begins (1 in the example above) is called the 'most significant digit'.

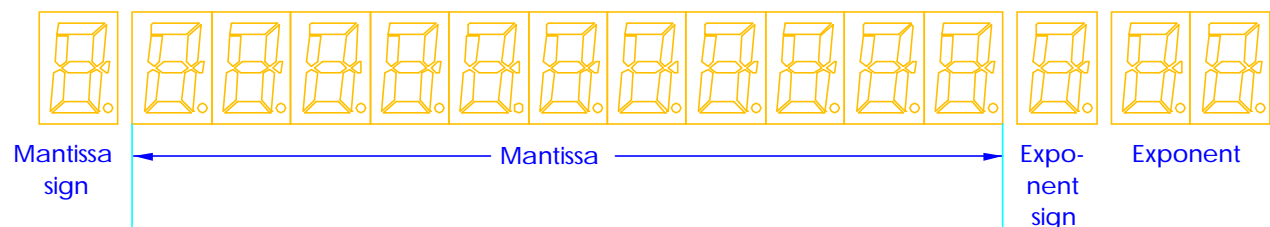
The numeral by which the mantissa number ends (7 in the example above) is called the 'least significant digit'.

We could also write $-1234.567 = -123456.7 \times 0.01$

Since $0.01 = 10$ to the -2th power, we can write -1234.567 as $-123456.7 \ -02$

The exponent appears in the last three digits (of the display) and indicates the power of 10 by which the mantissa must be multiplied or, which is the same thing, the number of places its decimal point must be moved, to the right (if the exponent is positive) or to the left (if the exponent is negative), filling the voids with zeros.

Most displays on (scientific) calculators are indicating the Mantissa and Exponents as following:



Reciprocal:

The reciprocal of a number is its multiplicative inverse, the number such that their product yield the number 1

e.g.: The reciprocal of 2 is 0.5, because $2 * 0.5 = 1$