Use of Exponents in expressing Large Numbers

Exponents can be used to represent very small and large numbers.

This large number can be expressed as 3×10^{22} tons of water.

Similarly, the diameter of smallest particle is 0.0000000000315 m. It can be expressed as 3.15×10^{-13} m using exponents.

The exponential form of the numbers 3×10^{22} and 3.15×10^{-13} are called standard or scientific form of a number.

Similarly, in case of 0.000000000000315, the decimal shift to right 13 place, ahead. Again we keep the thing in mind that we shift the decimal to right until, we have a digit other than zero to the left of decimal and the number of places we shift the decimal becomes the exponent of 10 but this time with negative sign.

The number when expressed in 0.00000000000315, this form is called usual or normal form.

Let us understand with an Example:

Example: Find the standard form of 12800000.

Solution: $12800000 = 128 \times (10)^5 = 1.28 (10)^2$