

Powers of Ten and Scientific Notation

A number in scientific notation is $a \times 10^n$, where a is at least 1 and less than 10

Power	Standard form	Name
10^9	1,000,000,000	one billion
10^6	1,000,000	one million
10^3	1,000	one thousand
10^2	100	one hundred
10^1	10	ten
10^0	1	one
10^{-1}	0.1	one tenth
10^{-2}	0.01	one hundredth
10^{-3}	0.001	one thousandth
10^{-6}	0.000001	one millionth

Real numbers in scientific notation

What	Standard form	Scientific notation
Speed of light (m/s)	299,792,458	$\approx 3.0 \times 10^8$
Earth to Sun (m)	149,600,000,000	$\approx 1.496 \times 10^{11}$
World population (2022)	8,000,000,000	8×10^9
One millimeter (m)	0.001	1×10^{-3}
Avogadro constant	602,214,076,000,000,000,000,000	$\approx 6.022 \times 10^{23}$

Moving the decimal point left gives a positive power of 10; moving it right gives a negative power.