

POWERS OF 2

Power	Approx	Exact
1	2	2
2	4	4
3	8	8
4	16	16
5	32	32
6	64	64
7	128	128
8	256	256
9	512	512
10	1000	1024
11	2000	2048
12	4000	4096
13	8000	8192
14	16000	16384
15	32000	32768
16	65000	65536
24	16 million	16,777,216
32	4 billion	4,294,967,296
64	18 quintillion	18,446,744,073,709,551,616

MEASURING TIME

Unit	Symbol	Description	Detail
Millisecond	m	One thousandth of a second	$10^{-3} = 1/1,000 = 0.001$
Microsecond	μ	One millionth of a second	$10^{-6} = 1/1,000,000 = 0.000001$
Nanosecond	n	On billionth of a second	$10^{-9} = 1/1,000,000,000$ $= 0.000000001$

MEASURING SPACE

Unit	Power (2)	Power 10 (~)	Approximate	Exact
Kilo	10	3	1,000	$10^{-3} = 1/1,000 = 0.001$
Mega	20	6	1,000,000	1,048,576
Giga	30	9	1,000,000,000	1,073,341,82
Tera	40	12	1,000,000,000,000	1,099,511,627,776

INTEGER TYPES

Type	Size (Bytes)	Min	Max
Unsigned Integer	4	0	$2^{32} - 1 = 4,294,967,295$
Unsigned Integer	8	0	$2^{64} - 1 = 18,446,744,073,709,600,000$
Signed Integer	4	$-2^{31} = 2,147,483,648$	$2^{32} - 1 = 2,147,483,647$
Signed Integer	8	$-2^{63} = -9,223,372,036,854,780,000$	$2^{63} - 1 = 9,223,372,036,854,780,000$

CHAR ENCODING POINT TYPES

Encoding	Size (Bytes)
ASCII	1
UTF-8	1-4
UTF-16	2-4

FLOATING POINT TYPES