



Fig. 1. (a) symbols of the seven base units; (b) symbols of the seven defining constants; (c) units and constants combined in a single logo.

Table 1 – The seven defining constants, their exact numerical values, and the SI unit that is defined by each exact value			
defining constants	fixed numerical values	SI unit	SI base unit
$\Delta\nu_{Cs}$	9 192 631 770	Hz	s^{-1}
c	299 792 458	m/s	m/s
h	$6.626\,070\,15 \times 10^{-34}$	J s	$kg\,m^2\,s^{-1}$
e	$1.602\,176\,634 \times 10^{-19}$	C	A s
k	$1.380\,649 \times 10^{-23}$	J/K	$kg\,m^2\,s^{-2}\,K^{-1}$
N_A	$6.022\,140\,76 \times 10^{23}$	1/mol	1/mol
K_{cd}	683	lm/W	$cd\,sr/(kg\,m^2\,s^{-3})$

Table 2 – Part a: SI base units defined by combinations of the seven defining constants

Base Units	Defining Constants							Combinations
	$\Delta\nu_{Cs}$	c	h	e	k	N_A	K_{cd}	
s								$1/\Delta\nu_{Cs}$
m								$c/\Delta\nu_{Cs}$
kg								$h\Delta\nu_{Cs}/c^2$
A								$e\Delta\nu_{Cs}$
K								$h\Delta\nu_{Cs}/k$
mol								$1/N_A$
cd								$h(\Delta\nu_{Cs})^2/K_{cd}$

Table 2 – Part b: Four examples of how all SI units are defined by combinations of the defining constants

Some Derived Units with Special Names and Symbols					Combinations
joule	J			$kg\ m^2/s^2$	$h\Delta\nu_{Cs}$
watt	W		J/s	$kg\ m^2/s^3$	$h(\Delta\nu_{Cs})^2$
volt	V	J/C	W/A	$kg\ m^2/(A\ s^3)$	$h\Delta\nu_{Cs}/e$
ohm	Ω	V/A	W/A ²	$kg\ m^2/(A^2\ s^3)$	h/e^2

V(V)	Vn(V)	I(A)	In(A)	DV(V)	DI(A)	V(V)	I(A)	R(Ohmi)	cV	ci	uV	uI	uR	
10	20	1.00E-02	2.00E-02	4.00E-03	9.00E-06	10.0040	0.010009	999.50045	1.00E+02	-1.00E+05	2.31E-01	-5.20E-01	0.57	<i>Tip B</i>
2.00E-04	1.00E-04	5.00E-04	2.00E-04											
*X	*Xn	*X	*Xn											

Marimea	Valoarea	Incert.	Legea	ci	ui (R) (Ohmi)
V(V)	10	2.31E-03	Rect.	100	0.23
I(A)	0.01	5.20E-06	Rect.	1.00E+05	0.52
R(Ohmi)	1000	1.13	(k=2)	Tip B	0.57

V(V)	d	d^2	I(mA)	R(Ohmi)	
10.01	-0.01	0.000100	10.00	1001.00	
9.98	0.02	0.000400	9.99	999.00	
10.02	-0.02	0.000400	10.01	1001.00	
9.99	0.01	0.000100	10.00	999.00	
10.00	Sum.	0.001000	10.00	1000.00	Med
0.0183	STDev.	0.0183	0.0082	1.15	STDev
0.0091			0.0041	0.58	<i>u</i>
				Tip A	

Marimea	Valoarea	Incert.	Legea	ci	ui (R) (Ohmi)
V(V)	10	0.0091	Norm.	100	0.91
I(mA)	10	0.0041	Norm.	100	0.41
R(Ohmi)	1000	2.00	(k=2)	Tip A	1.00