

International Mathematics and Units Writing Guidelines

		Correct	Incorrect					
Physics & Mathematics	Physical constants (speed of light in vacuum, Planck constant...) should be in italic.	<i>c, h, e, k, N_A</i>	c, h, e, k, N_A					
	Mathematical constants (e, π, i, j, γ...), explicitly defined functions (tan, arccos, ln, sgn, Γ, δ...) and well-defined operators (d, E, Var, Re, Im...) should be in roman.	$\int e^{i2\pi ft} \ln(t) dt$	$\int e^{i2\pi ft} \ln(t) dt$					
	Variables and functions (except explicitly defined ones) should be in italic.	<i>f(x) = x²</i>	f(x) = x²					
	Usually, vectors are bold italic lowercases, and matrices bold italic uppercases ¹ .	<i>z = Ax + by</i>	<i>z = Ax + by</i>					
	Subscripts and superscripts should be in roman if they are descriptive ² .	<i>m_n, x_n</i>	<i>m_n, x_n</i>					
	Multiplication of numbers should be denoted with ×.	2 × 3	2 3, 2 · 3, 2 * 3					
	Multiplication of variables should be denoted with no space, one space, ·, × or ().	<i>ab, a b, a · b, a × b, a(b + c)</i>	<i>a * b, a * b</i>					
	Division of variables or numbers should be denoted with /, – or negative power.	<i>a/b, $\frac{a}{b}$, a × b⁻¹</i>						
A hyphen should not be used to denote a minus sign.	5 – 7 = –2	5 - 7 = -2						
Unit names	Unit names should be in roman, be treated like ordinary nouns, and begin with a lowercase letter (even for units named after someone).	11 watts	11 watts, 11 watt, 11 Watts					
	Multiplication of unit names should be indicated by a nonbreaking space or -.	13 watts-hours	13 wattshours					
Unit symbols	Abbreviations should not be used instead of unit symbols, and the correct unit symbols should be used.	s, min, h, m, g, Hz, °, K, dB	sec, mn, hr, mtr, gr, hz, deg, °K, db					
	Unit symbols should be in roman, not be pluralized, and not be followed by a period (except at the end of a sentence).	17 min	17 min, 17 mins, 17 min.					
	Multiplication of unit symbols should be indicated with a nonbreaking space or ·.	19 W h, 19 W·h	19 Wh					
	Division of unit symbols should be indicated with /, – or negative power.	23 bit/s	23 bps					
	Brackets should be used to remove ambiguities when several / are used.	29 (°/h)/Hz	29 °/h/Hz					
	Unit symbols and unit names should not be mixed within one expression.	31 W/m ²	31 watts/m²					
Quantities	There should be a nonbreaking space between a number and a unit symbol. The only exceptions are the degree, and the minute and second of plane angle (°, ', ").	37 MHz, 41°, 43 °C, 47 °/s	37MHz, 41 °, 43°C, 47°/s					
	There should be a nonbreaking space between a number and a unit name.	53 minutes	53minutes					
	When a quantity is used as an adjective, the numerical value should be separated from the unit symbol with a space, and from the unit name with a hyphen.	a 59 dB gain a 61-minute trip	a 59-dB gain a 61 minutes trip					
	There should be a nonbreaking space between a number and the symbol %.	67 %	67%					
	For numbers with many digits, the digits may be divided into groups of three by a thin nonbreaking space. Neither dots nor commas should be used as separator.	123 456 789	123,456,789 123.456.789					
	With four digits, it is customary not to use a space to isolate a single digit.	1234	1,234, 1.234					
	The decimal marker should be the point or the comma, according to the language.	0.1 (EN), 0,1 (FR)	0.1 (FR), 0,1 (EN)					
	Prefixes should be attached to the unit names (no space or hyphen).	71 gigaohms	71 giga-ohms					
	Prefix symbols should be in roman and attached to the unit symbols.	73 km	73 km, 73 km					
	The correct symbols for SI prefixes should be used.	79 kHz, 83 μs	79 KHz, 83 us					
Prefixes	SI prefixes refer strictly to powers of 10, and should not be used for powers of 2.	1 kbit = 1000 bits	1 kbit = 1024 bits					
	Prefixes for binary powers have been standardized since 1998 (see below).	1 Kibit = 1024 bits						
Computer science	SI prefixes:	10 ³ , kilo, k	10 ⁶ , mega, M	10 ⁹ , giga, G	10 ¹² , tera, T	10 ¹⁵ , peta, P	10 ¹⁸ , exa, E	...
	Binary prefixes:	2 ¹⁰ , kibi, Ki	2 ²⁰ , mebi, Mi	2 ³⁰ , gebi, Gi	2 ⁴⁰ , tebi, Ti	2 ⁵⁰ , pebi, Pi	2 ⁶⁰ , exbi, Ei	...
	<i>Standard</i>	<i>Bit symbol</i>	<i>Byte symbol</i>	<i>Octet symbol</i>	Nowadays, 1 byte = 1 octet. To avoid conflicts, the best seems to use bit as symbol for bit, and o for byte/octet.			
	IEC 80000-13:2008	bit	B (conflict with bel)	o				
	IEEE 260.1-2024	b (conflict with barn)	B (conflict with bel)	o				

¹ In the example, *x, y, z* are vectors, *A* is a matrix and *b* is a scalar; ² In the example, *m_n* is the neutron mass and *x_n* is the *n*th sample of the sequence *x*.

Sources: BIPM, *The International System of Units (SI)*, 2019 (updated in 2022), <https://www.bipm.org/documents/20126/41483022/SI-Brochure-9-EN.pdf>
 NIST, *Guide for the use of the International System of Units (SI)*, NIST Special Publication 811, 2008, <https://physics.nist.gov/cuu/pdf/sp811.pdf>
 ISO, *ISO 80000-2:2019, Quantities and units — Part 2: Mathematics*, 2019 (updated in 2021), <https://www.iso.org/standard/64973.html>
 IEC, *IEC 80000-13:2008, Quantities and units — Part 13: Information science and technology*, 2008, <https://www.iso.org/standard/31898.html>
 IEEE, *IEEE 260.1-2024, IEEE Approved Draft Standard Letter Symbols for Units of Measurements*, 2024, <https://standards.ieee.org/ieee/260.1/6864>
 IEEE, *IEEE 1541-2021, IEEE Standard for Prefixes for Binary Multiples*, 2021, <https://standards.ieee.org/ieee/1541/6867>