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Energy Unit Conversion

TO → FROM ↓	λ (Å)	λ (μ m)	λ (cm)	ν (Hz)	E(keV)	WN(cm^{-1})	E(erg)
	1	$10^{-4}\lambda$	$10^{-8}\lambda$	$3.00 \times 10^{18}/\lambda$	$12.4/\lambda$	$10^8/\lambda$	$1.99 \times 10^{-8}/\lambda$
	$10^4\lambda$	1	$10^{-4}\lambda$	$3.00 \times 10^{14}/\lambda$	$1.24 \times 10^{-3}/\lambda$	$10^4/\lambda$	$1.99 \times 10^{-12}/\lambda$
	$10^8\lambda$	$10^4\lambda$	1	$3.00 \times 10^{10}/\lambda$	$1.24 \times 10^{-7}/\lambda$	$1/\lambda$	$1.99 \times 10^{-16}/\lambda$
ν (Hz)	$3.00 \times 10^{18}/\nu$	$3.00 \times 10^{14}/\nu$	$3.00 \times 10^{10}/\nu$	1	$4.14 \times 10^{-18}\nu$	$3.34 \times 10^{-11}\nu$	$6.63 \times 10^{-27}\nu$
E(keV)	$12.4/E$	$1.24 \times 10^{-3}/E$	$1.24 \times 10^{-7}/E$	$2.42 \times 10^{17}E$	1	8.07×10^6E	$1.60 \times 10^{-9}E$
WN(cm^{-1})	$10^8/\text{WN}$	$10^4/\text{WN}$	$1/\text{WN}$	$3.00 \times 10^{10}\text{WN}$	$1.24 \times 10^{-7}\text{WN}$	1	$1.99 \times 10^{-16}\text{WN}$
E(erg)	$1.99 \times 10^{-8}/E$	$1.99 \times 10^{-12}/E$	$1.99 \times 10^{-16}/E$	$1.51 \times 10^{26}E$	6.24×10^8E	$5.03 \times 10^{15}E$	1

Flux Density Conversion

(E in keV; λ in Å)

TO → FROM ↓	S_ν (Jy)	f_E ($\frac{\text{Photons}}{\text{cm}^2 \text{ s keV}}$)	f_λ ($\frac{\text{Photons}}{\text{cm}^2 \text{ s Å}}$)	F_λ ($\frac{\text{ergs}}{\text{cm}^2 \text{ s Å}}$)	F_ν ($\frac{\text{ergs}}{\text{cm}^2 \text{ s Hz}}$)
S_ν (Jy)	S_ν (Jy)	$1.51 \times 10^3 S_\nu / E$	$1.51 \times 10^3 S_\nu / \lambda$	$3.00 \times 10^{-5} S_\nu / \lambda^2$	$10^{-23} S_\nu$
f_E ($\frac{\text{Photons}}{\text{cm}^2 \text{ s keV}}$)	$6.63 \times 10^{-4} E f_E$	f_E	$8.07 \times 10^{-2} E^2 f_E$	$1.29 \times 10^{-10} E^3 f_E$	$6.63 \times 10^{-27} E f_E$
f_λ ($\frac{\text{Photons}}{\text{cm}^2 \text{ s Å}}$)	$6.63 \times 10^{-4} \lambda f_\lambda$	$8.07 \times 10^{-2} \lambda^2 f_\lambda$	f_λ	$1.99 \times 10^{-8} f_\lambda / \lambda$	$6.63 \times 10^{-27} \lambda f_\lambda$
F_λ ($\frac{\text{ergs}}{\text{cm}^2 \text{ s Å}}$)	$3.34 \times 10^4 \lambda^2 F_\lambda$	$4.06 \times 10^6 \lambda^3 F_\lambda$	$5.03 \times 10^7 \lambda F_\lambda$	F_λ	$3.34 \times 10^{-19} \lambda^2 F_\lambda$
F_ν ($\frac{\text{ergs}}{\text{cm}^2 \text{ s Hz}}$)	$10^{23} F_\nu$	$1.51 \times 10^{26} F_\nu / E$	$1.51 \times 10^{26} F_\nu / \lambda$	$3.00 \times 10^{18} F_\nu / \lambda^2$	F_ν



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PHYSICAL AND ASTRONOMICAL CONSTANTS

Velocity of light	c	$= 2.998 \times 10^{10} \text{ cm s}^{-1}$
Gravitational constant	G	$= 6.673 \times 10^{-8} \text{ dyne cm}^2 \text{ gm}^{-2}$
Planck's constant	h	$= 6.626 \times 10^{-27} \text{ erg s}$
Electron charge	e	$= 4.803 \times 10^{-10} \text{ esu}$ $= 1.602 \times 10^{-19} \text{ coulomb}$
Mass of electron	m_e	$= 9.110 \times 10^{-28} \text{ g}$
Boltzmann constant	k	$= 1.381 \times 10^{-16} \text{ erg K}^{-1}$
Avogadro's number	N	$= 6.022 \times 10^{23} \text{ mole}^{-1}$
Rydberg constant	R_∞	$= 2\pi^2 m_e e^4 / ch^3$ $= 1.097 \times 10^5 \text{ cm}^{-1}$
Proton mass	M_p	$= 1.673 \times 10^{-24} \text{ g}$ $= 1.007 \text{ amu}$
Thompson cross-section	$8\pi r_e^2 / 3$	$= 6.652 \times 10^{-25} \text{ cm}^{-2}$
Stefan-Boltzmann constant	σ	$= 5.670 \times 10^{-5} \text{ erg cm}^{-2} \text{ K}^{-4} \text{ s}^{-1}$
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Solar mass	M_\odot	$= 1.989 \times 10^{33} \text{ gm}$
Solar radius	R_\odot	$= 6.960 \times 10^{10} \text{ cm}$
Solar luminosity	L_\odot	$= 3.826 \times 10^{33} \text{ erg s}^{-1}$
Earth mass	M_\oplus	$= 5.976 \times 10^{27} \text{ gm}$
Earth equatorial radius	R_\oplus	$= 6.378 \times 10^3 \text{ km}$
Gravity at earth's surface	g_\oplus	$= 9.807 \times 10^2 \text{ cm s}^{-2}$
Astronomical unit	AU	$= 1.496 \times 10^{13} \text{ cm}$
parsec	pc	$= 3.262 \text{ light years}$ $= 3.086 \times 10^{18} \text{ cm}$
light year	lyr	$= 9.461 \times 10^{17} \text{ cm}$
Rayleigh	Ry	$= (1/4\pi) \times 10^6 \text{ photons/cm}^2/\text{s/sr}$
Jansky	Jy	$= 10^{-26} \text{ watts/m}^2/\text{Hz}$
steradian	sr	$= 3.283 \times 10^3 \text{ deg}^2$ $= 1.182 \times 10^7 \text{ arcmin}^2$ $= 4.255 \times 10^{10} \text{ arcsec}^2$
degree		$= 1.745 \times 10^{-2} \text{ radian}$
arcmin		$= 2.909 \times 10^{-4} \text{ radian}$
arcsec		$= 4.848 \times 10^{-6} \text{ radian}$
deg ²		$= 3.046 \times 10^{-4} \text{ steradian}$
arcmin ²		$= 8.462 \times 10^{-8} \text{ steradian}$
arcsec ²		$= 2.350 \times 10^{-11} \text{ steradian}$