I.6.20	$f = \exp\left(-\frac{\theta^2}{2\sigma^2}\right) / \sqrt{2\pi\sigma^2}$	Symbols f Probability density function Position Standard deviation	SI Derived Unit 1 1 1	1 1 1 1	Original V, F, P V, F, P V, F, P	V, F, P V, F V, F, P	Origina N/A $\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$	N/A $\mathcal{U}_{\log}(10^{-1},$
I.6.20a	$f = \exp\left(-\frac{\theta^2}{2}\right) / \sqrt{2\pi}$	f Probability density function Position Probability density function Probability density function Position	1 1 1 1 1	1 1 1 1 1	V, F, P V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, P V, F V, F, P V, F	N/A $U(1,3)$ N/A $U(1,3)$ $U(1,3)$	N/A $\mathcal{U}_{\mathrm{log}}(10^{-1},$ N/A
I.6.20b	$f = \exp\left(-\frac{\sqrt{2\pi}}{2\sigma^2}\right)/\sqrt{2\pi}\sigma$	91 Position 7 Standard deviation F Force of gravity G Gravitational constant	1 1 1 N $m^3 \cdot kg^{-1} \cdot s^{-2}$	$ \begin{array}{c} 1\\ 1\\ \hline kg \cdot m \cdot s^{-2}\\ kg^{-1} \cdot m^3 \cdot s^{-2} \end{array} $	V, F, P V, F, P V, F, P V, F, P	V, F V, F, P V, F, P C, F, P	U(1,3) U(1,3) U(1,3) N/A U(1,2)	$\mathcal{U}_{\mathrm{log}}(10^{-1}, \mathcal{U}_{\mathrm{log}}(10^{-1}, \mathcal{U}_{\mathrm{log}}(10^{-1$
	Gm_1m_2	m_1 Mass m_2 Mass x_2 Position x_1 Position	$kg \ kg \ m \ m$	$egin{array}{c} kg \ m \ m \end{array}$	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, P V, F V, F	U(1, 2) U(1, 2) U(1, 2) U(3, 4)	$egin{aligned} \mathcal{U}_{\mathrm{log}}(10^{0},\ \mathcal{U}_$
		$egin{array}{ll} y_2 & \operatorname{Position} \ y_1 & \operatorname{Position} \ z_2 & \operatorname{Position} \ z_1 & \operatorname{Position} \ \end{array}$	$m \ m \ m \ m$	$m \ m \ m \ m$	V, F, P V, F, P V, F, P V, F, P	V, F V, F V, F V, F	U(1, 2) U(3, 4) U(1, 2) U(3, 4)	$egin{aligned} \mathcal{U}_{\mathrm{log}}(10^{0},\ \mathcal{U}_$
I.15.3t	$t_1 = \frac{t - ux/c^2}{\sqrt{1 - u^2/c^2}}$	t_1 Time t_2 Time t_3 Velocity t_4 Position	$s \\ s \\ m/s \\ m$	s s $m \cdot s^{-1}$ m	V, F V, F, P V, F, P V, F, P	V, F V, F, NN V, F V, F, P	$\mathcal{U}(1,2)$ $\mathcal{U}(1,5)$	$\mathcal{U}_{\mathrm{log}}(10^{5},\ \mathcal{U}_{\mathrm{log}}(10^{0},$
I.15.3x	$x_1 = \frac{x - ut}{\sqrt{1 - u^2/c^2}}$	Speed of light v_1 Position v Position v Velocity	m/s m m m/s	$m \cdot s^{-1}$ m m $m \cdot s^{-1}$	V, F, P V, F, P V, F, P V, F, P	V, F V, F V, F	$ \frac{\mathcal{U}(3, 10)}{N/A} $ $ \mathcal{U}(5, 10) $ $ \mathcal{U}(1, 2) $	$N/A = N/A = N_{log}(10^0, U_{log}(10^6, U_$
	x =	x Time x Speed of light x Wavelength x Wavelength	$m \ m$	$m \cdot s^{-1}$ m m	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, P	$ \begin{array}{c} \mathcal{U}(1,2) \\ \mathcal{U}(3,20) \\ \hline N/A \\ \mathcal{U}(1,5) \end{array} $	$\frac{2.998 \times 10^{-1}}{N/A}$ $\mathcal{U}_{log}(10^{-1})$
I.29.16	$\sqrt{x_1^2 + x_2^2 + 2x_1x_2\cos(\theta_1 - \theta_2)}$	$egin{array}{ll} w_2 & ext{Wavelength} \ eta_1 & ext{Angle} \ eta_2 & ext{Angle} \ & ext{Amplitude of combined wave} \end{array}$	$m \\ rad \\ rad \\ 1$	m 1 1	V, F, P V, F, P	V, F, NN V, F, NN V, F, P	$\mathcal{U}(1,5)$	$\mathcal{U}(0,2\pi)$ $\mathcal{U}(0,2\pi)$ \mathcal{N}/A
I.30.3	$I = I_0 \frac{1}{\sin^2(\theta/2)}$	In Amplitude of wave In Number of waves Phase difference Penergy	1 1 rad J	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	V, F, P V, F, P V, F, P	V, F, P V, I, P V, F	$ \begin{array}{c} \mathcal{U}(1,5) \\ \mathcal{U}(1,5) \\ \mathcal{U}(1,5) \end{array} $ N/A	$\mathcal{U}_{\mathrm{log}}(10^{1},\ \mathcal{U}(-2\pi,1))$
I.32.17	$P = \left(\frac{1}{2}\epsilon cE^2\right) \left(\frac{8\pi r^2}{3}\right) \left(\frac{\omega^4}{(\omega^2 - \omega_0^2)^2}\right)$	Vacuum permittivity Speed of light Magnitude of electric field Radius Frequency of electromagnetic waves	$F/m \ m/s \ m \ m \ rad/s$	$kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2$ $m \cdot s^{-1}$ m s^{-1}	V, F, P V, F, P V, F, P V, F, P V, F, P	C, F, P C, F, P V, F V, F, P V, F	$\mathcal{U}(1,2)$ $\mathcal{U}(1,2)$ $\mathcal{U}(1,2)$ $\mathcal{U}(1,2)$ $\mathcal{U}(1,2)$	$2.998 imes 1$ $\mathcal{U}_{\log}(10^{1}, \mathcal{U}_{\log}(10^{-2}, \mathcal{U}_{\log}(10^{$
I.34.14	$\omega = \frac{1 + v/c}{\sqrt{1 + v/c}} \omega_0$	ω Frequency of electromagnetic waves Frequency of electromagnetic waves Frequency of electromagnetic waves Velocity Speed of light	rad/s rad/s m/s m/s	s^{-1} s^{-1} $m \cdot s^{-1}$ $m \cdot s^{-1}$	V, F, P V, F, P V, F, P V, F, P	V, F V, F, P V, F C, F, P	$\mathcal{U}(3,5)$ $\mathrm{N/A}$ $\mathcal{U}(1,2)$	$egin{aligned} \mathcal{U}_{\mathrm{log}}(10^9,1) \ \mathrm{N/A} \ \mathcal{U}_{\mathrm{log}}(10^6,1) \end{aligned}$
1.37.4	$I_{12} = I_1 + I_2$	I_{12} Amplitude of wave I_{12} Amplitude of wave I_{12} Amplitude of wave	rad/s rad/s m m	$\frac{m \cdot s}{s^{-1}}$ m m	V, F, P V, F, NN V, F, P		$ \begin{array}{c} \mathcal{U}(1,5) \\ \hline N/A \\ \mathcal{U}(1,5) \\ \mathcal{U}(1,5) \end{array} $	$rac{\mathcal{U}_{ m log}(10^9,1)}{ m N/A}$ $\mathcal{U}_{ m log}(10^{-3},1)$
I.39.22		Phase difference Pressure n Number of molecules k Boltzmann constant	rad Pa 1 J/K	$ \begin{array}{c} $	V, F, P V, F, P V, F, P	V, F, NN V, F, P		$\mathcal{U}(0, 2\tau)$ N/A $\mathcal{U}_{\mathrm{log}}(10^{23},$
	, 	T Temperature V Volume n Molecular density n Molecular density	$\frac{K}{m^3}$ $\frac{1/m^3}{1/m^3}$	$\frac{K}{m^3}$ $\frac{m^{-3}}{m^{-3}}$	V, F, P	V, F, P V, F, P V, F, P	${\cal U}(1,5) \ {\cal U}(1,5) \ {\cal N}/{ m A} \ {\cal U}(1,5)$	$egin{aligned} \mathcal{U}_{ m log}(10^1,\ \mathcal{U}_{ m log}(10^{-5},\ m N/A\ & \mathcal{U}_{ m log}(10^{25},\ \end{pmatrix}$
I.40.1	$n = n_0 \exp\left(-mgx/kT\right)$	m Mass g Gravitational acceleration w Height k Boltzmann constant	$\stackrel{kg}{m/s^2} m \ J/K$	kg $m \cdot s^{-2}$ m $kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}$	V, F, P V, F, P V, F, P			$\mathcal{U}_{\log}(10^{-24}, 9.807 \times 10^{-24})$ $\mathcal{U}_{\log}(10^{-2}, 10^{-24})$
I 41 16	$L_{ m rad} = rac{h}{2\pi}$	T Temperature L_{rad} Radiation per frequency L_{rad} Planck constant L_{req} Frequency of electromagnetic wave	$K = \frac{J/m^2}{J \cdot s}$ $1/s$	$\frac{K}{kg \cdot s^{-2}}$ $kg \cdot m^2 \cdot s^{-1}$ s^{-1}	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, P C, F, P V, F, P	${{\cal U}(1,5)} \over {{ m N/A}} \ {{\cal U}(1,5)} \ {{\cal U}(1,5)} \ {{\cal U}(1,5)}$	N/A 6.626 × 10
I.41.16	$\pi^2 c^2(\exp(h\omega/2\pi kT) - 1)$	Speed of light Boltzmann constant Temperature Q Energy	m/s J/K K J	$\frac{m \cdot s^{-1}}{kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}}$ $\frac{K}{kg \cdot m^2 \cdot s^{-2}}$	V, F, P V, F, P V, F, P V, F	C, F, P C, F, P V, F, P	${\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal N}/A$	2.998×1 1.381×10 $\mathcal{U}_{\log}(10^{1}, N/A)$
I.44.4	$Q = nkT \ln(\frac{V_2}{V_1})$	n Number of molecules Boltzmann constant T Temperature V_2 Volume	$1 \ J/K \ K \ m^3$	$kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}$ K m^3	V, F, P V, F, P V, F, P V, F, P	V, I*, P C, F, P V, F, P V, F, P	U(1,5) U(1,5) U(1,5) U(1,5)	1.381×10 $\mathcal{U}_{\log}(10^{1},$ $\mathcal{U}_{\log}(10^{-5},$
I.50.26	, ,	$egin{array}{ll} V_1 & ext{Volume} \ & & ext{Amplitude} \ & & ext{Amplitude} \ & & ext{Angular velocity} \ \end{array}$	$\frac{m^3}{1}$ 1 1 rad/s	$ \begin{array}{c} m^3 \\ 1 \\ 1 \\ s^{-1} \end{array} $	V, F, P V, F V, F, P V, F, P		${{\cal U}(1,5)}\over {{ m N/A}} \ {{\cal U}(1,3)} \ {{\cal U}(1,3)}$	$egin{aligned} \mathcal{U}_{ m log}(10^{-5},\ m N/A\ & \mathcal{U}_{ m log}(10^{-1},\ & \mathcal{U}_{ m log}(10^{1},\ & \mathcal{U}_{ m log}(10^{1$
	,	Time Variable E Electric field E Electric dipole moment	$egin{array}{c} s \\ 1 \\ V/m \\ C \cdot m \end{array}$	$ \begin{array}{c} s\\ 1\\ kg \cdot m \cdot s^{-3} \cdot A^{-1}\\ m \cdot s \cdot A \end{array} $	V, F, P V, F, P V, F V, F, P	V, F, NN V, F V, F V, F	$\frac{\mathcal{U}(1,3)}{N/A}$	$U_{\log}(10^{-3},$
II.6.15a	$E = \frac{p}{4\pi\epsilon} \frac{3z}{r^5} \sqrt{x^2 + y^2}$	Vacuum permittivity Position Distance Position	$F/m \ m \ m \ m$	$kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2$ m m m	V, F, P V, F, P V, F, P V, F, P	C, F, P V, F V, F, P V, F	U(1,3) U(1,3) U(1,3) U(1,3)	8.854×10 $\mathcal{U}_{\log}(10^{-10},$ $\mathcal{U}_{\log}(10^{-10},$ $\mathcal{U}_{\log}(10^{-10},$
II.6.15b	n 2 oo Asin A	y Position E Electric field c Electric dipole moment Vacuum permittivity	$m \ V/m \ C \cdot m \ F/m$	$ \frac{m}{kg \cdot m \cdot s^{-3} \cdot A^{-1}} $ $ m \cdot s \cdot A $ $ kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2 $	V, F, P V, F V, F, P V, F, P	V, F V, F V, F C, F, P	$\frac{\mathcal{U}(1,3)}{N/A}$	$\frac{\mathcal{U}_{\log}(10^{-10}, N/A)}{N/A}$ $\mathcal{U}_{\log}(10^{-22}, N/A)$
	,	Angle Distance Number of polar molecules per angle per unit Number of molecules per unit volume	$ \begin{array}{c} rad \\ m \\ \hline t \text{ volume} & 1/(m^3 \cdot rad \cdot sr) \\ & 1/(m^3 \cdot sr) \end{array} $	$ \begin{array}{c} 1 \\ m \\ \hline m^{-3} \\ m^{-3} \end{array} $	V, F, P V, F, P V, F V, F, P	V, F V, F, P V, F	${\cal U}(1,3) \ {\cal U}(1,3) \ {\cal N}/{ m A} \ {\cal U}(1,3)$	$egin{aligned} \mathcal{U}(0,\pi \ \mathcal{U}_{\mathrm{log}}(10^{-10},\ \mathrm{N/A} \ \mathcal{U}_{\mathrm{log}}(10^{27},\ \end{aligned}$
II.11.17	$n = n_0 \left(1 + \frac{p_0 E \cos \theta}{kT} \right)$	Electric dipole moment Magnitude of electric field Angle Boltzmann constant	$C\cdot m \ V/m \ rad \ J/K$	$m \cdot s \cdot A$ $kg \cdot m \cdot s^{-3} \cdot A^{-1}$ 1 $kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}$	V, F, P V, F, P V, F, P V, F, P	V, F V, F V, F, NN C, F, P	U(1,3) U(1,3) U(1,3) U(1,3)	$\mathcal{U}_{\log}(10^{-22}, \ \mathcal{U}_{\log}(10^{1}, \ \mathcal{U}(0, 27))$ 1.381 × 10
II.11.20	$p=n_0p_0^2E$	T Temperature P Polarizability n_0 Number of atom p_0 Electric dipole moment	K C/m^2 1 $C \cdot m$	$ \frac{K}{m^{-2} \cdot s \cdot A} $ $ 1 $ $ m \cdot s \cdot A $	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F V, I*, P V, F	${{\cal U}(1,3)} \over {{ m N/A}} \over {{\cal U}(1,5)} \over {{\cal U}(1,5)}$	$egin{aligned} \mathcal{U}_{ m log}(10^1,\ m N/A\ & \mathcal{U}_{ m log}(10^{23},\ & \mathcal{U}_{ m log}(10^{-22},\ \end{aligned}$
2U	$P = \frac{-070}{3kT}$	E Magnitude of electric field Boltzmann constant T Temperature P Polarizability	V/m J/K K C/m^2	$kg \cdot m \cdot s^{-3} \cdot A^{-1}$ $kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}$ K $m^{-2} \cdot s \cdot A$	V, F, P V, F, P V, F, P V, F, P	V, F C, F, P V, F, P	${\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal N}/A$	$ \begin{array}{c} \mathcal{U}_{\log}(10^{1}, \\ 1.381 \times 10 \\ \mathcal{U}_{\log}(10^{1}, \\ \hline N/A \end{array} $
II.11.27	$P = \frac{N\alpha}{1 - (N\alpha/3)} \epsilon E$	N Number of atom Molecular polarizability Vacuum permittivity Magnitude of electric field	$egin{array}{c} 1 \ F/m \ V/m \end{array}$	$1 \\ 1 \\ kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2 \\ kg \cdot m \cdot s^{-3} \cdot A^{-1}$	V, F, NN V, F, P V, F, P	V, F, P C, F, P	$\mathcal{U}(0,1)$ $\mathcal{U}(0,1)$ $\mathcal{U}(1,2)$ $\mathcal{U}(1,2)$	$U_{\log}(10^{-33}, 8.854 \times 10^{-33})$
II.11.28	$\kappa = 1 + \frac{N\alpha}{1 - (N\alpha/3)}$	Electric dipole moment per unit volume Number of electric dipoles Molecular polarizability Electric charge density	1 1 1 C/m^3	$ \begin{array}{c} 1\\ 1\\ 1\\ m^{-3} \cdot s \cdot A \end{array} $		V, F V, I*, P V, F, P V, F, P	N/A $\mathcal{U}(0,1)$ $\mathcal{U}(0,1)$ N/A	$\frac{\mathcal{U}_{\log}(10^{-33}, \text{N/A})}{\text{N/A}}$
II.13.23	$\rho = \sqrt{1-v^2/c^2}$	po Electric charge density Velocity Speed of light Electric current	C/m^3 m/s m/s A	$m^{-3} \cdot s \cdot A$ $m \cdot s^{-1}$ $m \cdot s^{-1}$ A	V, F, P V, F, P V, F, P	V, F, P V, F, P C, F, P V, F, P	$ \begin{array}{c} \mathcal{U}(1,5) \\ \mathcal{U}(1,2) \\ \mathcal{U}(3,10) \\ \hline N/A \end{array} $	$\begin{array}{c} \mathcal{U}_{\mathrm{log}}(10^{6},\\ 2.998\times \\ \hline \mathrm{N/A} \end{array}$
II.13.34	$J = \sqrt{1 - v^2/c^2}$	po Electric charge density Velocity Speed of light Wavenumber	C/m^3 m/s m/s $1/m$	$m^{-3} \cdot s \cdot A$ $m \cdot s^{-1}$ $m \cdot s^{-1}$ m^{-1}	V, F, P V, F, P V, F, P	V, F, P	$\mathcal{U}(1,5)$ $\mathcal{U}(1,2)$ $\mathcal{U}(3,10)$ N/A	${{\cal U}_{ m log}(10^6,\ 2.998 imes N/A}$
II.24.17	$k = \sqrt{\omega^2/c^2 - \pi^2/a^2}$	Angular velocity Speed of light Length Number of atoms with the equivalent magnet	rad/s m/s m cic moment $1/m^3$	$ \begin{array}{c} s^{-1} \\ m \cdot s^{-1} \\ \hline m \\ m^{-3} \end{array} $	V, F, P V, F, P V, F, P V, F, P	V, F C, F, P V, F, P V, I*, P	${\cal U}(4,6) \ {\cal U}(1,2) \ {\cal U}(2,4) \ { m N/A}$	$egin{aligned} \mathcal{U}_{ m log}(10^9,1) \ 2.998 imes \ \mathcal{U}_{ m log}(10^{-3},1) \ N/A \end{aligned}$
II.35.18	$a = \frac{N}{\exp(\mu B/kT) + \exp(-\mu B/kT)}$	N Number of atoms per unit volume Magnetic moment Magnetic flux density Boltzmann constant	$1/m^3$ N/A^2 A/m J/K	$m^{-3} \\ kg \cdot m \cdot s^{-2} \cdot A^{-2} \\ m^{-1} \cdot A \\ kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}$	V, F, P V, F, P V, F, P V, F, P	V, I*, P V, F, P V, F, P C, F, P	$\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$	$\mathcal{U}_{\log}(10^{23}, \mathcal{U}_{\log}(10^{-25}, \mathcal{U}_{\log}(10^{-3}, 1.381 \times 10^{-3}))$
II.35.21	$M = Nu \tanh \left(\frac{\mu B}{2}\right)$	T Temperature M Number of magnetized atoms N Number of atom Magnetic moment	K 1 1 N/A^2	K 1 1 $kg \cdot m \cdot s^{-2} \cdot A^{-2}$	V, F, P V, F, P V, F, P V, F, P	V, F, P V, I*, P V, I*, P V, F, P	${{\cal U}(1,3)} \over {{ m N/A}} \over {{\cal U}(1,5)} \over {{\cal U}(1,5)}$	$egin{aligned} \mathcal{U}_{ m log}(10^1,\ { m N/A} \ \mathcal{U}_{ m log}(10^{23},\ \mathcal{U}_{ m log}(10^{-25},\ \end{pmatrix}$
00.21	$M = N \mu \tanh \left(\frac{1}{kT}\right)$	B Magnetic flux density k Boltzmann constant T Temperature r Parameter of magnetization	A/m J/K K 1	$\frac{m^{-1} \cdot A}{kg \cdot m^2 \cdot s^{-2} \cdot K^{-1}}$ $\frac{K}{1}$	V, F, P V, F, P V, F, P V, F, P	V, F, P C, F, P V, F, P V, F	${\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5)$	
II.36.38	$x = \frac{\mu H}{kT} + \frac{\mu \lambda}{\epsilon c^2 kT} M$	Magnetic moment Magnetic field strength Boltzmann constant Temperature	$N/A^2 \ A/m \ J/K \ K$	$kg \cdot m \cdot s^{-2} \cdot A^{-2}$ $m^{-1} \cdot A$ $kg \cdot m^{2} \cdot s^{-2} \cdot K^{-1}$ K	V, F, P V, F, P V, F, P V, F, P	V, F V, F C, F, P V, F, P	U(1,3) U(1,3) U(1,3) U(1,3)	$\mathcal{U}_{\log}(10^{-25}, \mathcal{U}_{\log}(10^{-3}, 1.381 \times 10^{-3}, \mathcal{U}_{\log}(10^{1}, \mathcal{U}_{\log}(10^{1}, 10^{1}))$
		λ Constant Vacuum permittivity Speed of light Number of magnetized atoms	$1 \ F/m \ m/s \ 1$	$kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2 \\ m \cdot s^{-1} \\ 1$			U(1,3) U(1,3) U(1,3) U(1,3)	8.854×10 2.998×10
III.4.33	$E = \frac{\hbar\omega}{2\pi(\exp(\hbar\omega/2\pi kT) - 1)}$	E Energy h Planck constant ω Frequency k Boltzmann constant	$J \ J \cdot s \ rad/s \ J/K$	$kg \cdot m^{2} \cdot s^{-2} \\ kg \cdot m^{2} \cdot s^{-1} \\ s^{-1} \\ kg \cdot m^{2} \cdot s^{-2} \cdot K^{-1}$			N/A ${\cal U}(1,5)$ ${\cal U}(1,5)$ ${\cal U}(1,5)$	$\mathcal{U}_{\log}(10^8, 1.381 \times 10^8)$
	$P_{\mathrm{I} o \mathrm{II}} =$	T Temperature $P_{I out II}$ Probability Electric dipole moment E Magnitude of electric field	K 1 $C \cdot m$ V/m	$ \begin{array}{c} K \\ 1 \\ m \cdot s \cdot A \\ kg \cdot m \cdot s^{-3} \cdot A^{-1} \end{array} $	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, NN V, F V, F	U(1, 3)	$N/A \ \mathcal{U}_{\log}(10^{-22}, \ \mathcal{U}_{\log}(10^1,$
III.9.52	$\left(\frac{1}{h}\right) \frac{((\omega - \omega_0) t/2)^2}{((\omega - \omega_0) t/2)^2}$	Time h Planck constant ω Frequency Resonant frequency	$s \ J \cdot s \ rad/s \ rad/s$	$kg \cdot m^{2} \cdot s^{-1}$ s^{-1} s^{-1} $kg \cdot m^{2} \cdot s^{-2}$	V, F, P V, F, P V, F, P	C, F, P V, F, P V, F, P	U(1,3) U(1,5) U(1,5)	$\mathcal{U}_{\mathrm{log}}(10^8,10^8)$
III.10.19	$E=\mu\sqrt{B_x^2+B_y^2+B_z^2}$	E Energy u Magnetic moment B_x Element of magnetic field B_y Element of magnetic field	$J \\ N/A^2 \\ A/m \\ A/m$	$kg \cdot m^{-} \cdot s^{-2}$ $kg \cdot m \cdot s^{-2} \cdot A^{-2}$ $m^{-1} \cdot A$ $m^{-1} \cdot A$ $m^{-1} \cdot A$	V, F, P V, F, P V, F, P V, F, P	V, F V, F V, F V, F	$\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$	$U_{\log}(10^{-3},$
III.21.20	$J = -\rho \frac{q}{m} A$	B _z Element of magnetic field J Electric current Electric charge density Electric charge	A/m A C/m^3 C	$ \begin{array}{c} $	V, F, P V, F, N V, F, P V, F, P	V, F, N		$N/A \ {\cal U}_{ m log}(10^{27}, \ {\cal U}_{ m log}(10^{-11},$
		A Magnetic vector potential m Mass A Differential scattering cross section Z ₁ Atomic number	$V\cdot s/m \ kg \ m^2/sr \ 1 \ 1$	$ \frac{kg}{m^2} $ 1	V, F, P V, F, P V, F, P	V, F, P V, I, P	N/A $\mathcal{U}(1,2)$	$egin{aligned} \mathcal{U}_{\mathrm{log}}(10^{-30},\ \mathrm{N/A} \ \mathcal{U}_{\mathrm{log}}(10^{0},\ \mathrm{N/A}) \ \mathcal{U}_{\mathrm{log}}(10^{0},\ \mathrm{N/A}) \end{aligned}$
B1	$A = \left(\frac{Z_1 Z_2 \alpha hc}{4E \sin^2(\theta/2)}\right)^2$	Z_2 Atomic number Fine structure constant Dirac's constant Speed of light Non-relativistic kinetic energy	$egin{array}{c} 1 \\ 1 \\ J \cdot s \\ m/s \\ J \end{array}$	$kg \cdot m^2 \cdot s^{-1} \ m \cdot s^{-1} \ kg \cdot m^2 \cdot s^{-2}$	V, F, P V, F, P V, F, P V, F, P	V, I, P C, F, P C, F, P C, F, P	U(1,2) U(1,5) U(1,2) U(1,2)	7.297×1 1.055×1
	$_{h}$ _ mk_{G}	Scattering angle Inverse radius Mass (The Earth)	$rad \ 1/m \ kg$	$\frac{1}{m^{-1}}$ kg	V, F, P V, F V, F, P	V, F, NN V, F V, F, P	$\mathcal{U}(1,3)$ N/A $\mathcal{U}(1,3)$	$\mathcal{U}(0, 2\pi)$ N/A $\mathcal{U}_{log}(10^{23},$
B2	$\left(1 + \sqrt{1 + \frac{2EL^2}{mk_G^2}}\cos\left(\theta_1 - \theta_2\right)\right)$	k_G Variable L Angular Momentum E Energy $ heta_1$ Angle A_2 Angle	$egin{array}{c} J\cdot m & & & & & & & & & & & & & & & & & & $	$kg \cdot m^{3} \cdot s^{-2}$ $kg \cdot m^{2} \cdot s^{-2}$ $kg \cdot m^{2} \cdot s^{-2}$ 1	V, F, P V, F, P	V, F, P		$\mathcal{U}_{\mathrm{log}}(10^8,1)$ $\mathcal{U}_{\mathrm{log}}(10^{25},1)$ $\mathcal{U}_{\mathrm{log}}(10^{25},1)$
В3	$r = \frac{d(1-\alpha^2)}{1+\alpha\cos(\theta_1-\theta_2)}$	$egin{array}{ll} egin{array}{ll} Angle & & & & & \\ \hline c & & & & & \\ \hline d & & & & & \\ Semimajor axis of elliptical orbit & & \\ lpha & & & & \\ Orbital eccentricity & & \\ eta_1 & & & \\ Angle & & & \\ \end{array}$	rad m m 1 rad	1 m m 1 1	V, F, N V, F, P V, F, P		N/A $\mathcal{U}(1,3)$ $\mathcal{U}(2,4)$	$N/A \ \mathcal{U}_{\mathrm{log}}(10^8, \mathcal{U}_{\mathrm{log}}, 10^8, \mathcal{U}_{\mathrm{log}})$
D.		$egin{array}{ll} & ext{Angle} \\ egin{array}{ll} & ext{Angle} \\ egin{array}{ll} & ext{Velocity} \\ m & ext{Mass (The Earth)} \\ E & ext{Energy} \\ \end{array}$	$rad\ rad\ m/s$ kg J	$ \begin{array}{c} 1\\ 1\\ \hline m \cdot s^{-1}\\ kg\\ kg \cdot m^2 \cdot s^{-2} \end{array} $		V, F, NN V, F, NN V, F, P V, F, P V, F, P	$\mathcal{U}(4,5)$ $\mathrm{N/A}$ $\mathcal{U}(1,3)$	$egin{array}{c} \mathcal{U}(0,2\pi) & \mathcal{U}(0,2\pi) \\ \hline & \mathrm{N/A} \\ \mathcal{U}_{\mathrm{log}}(10^{23}, & & \\ \mathcal{U}_{\mathrm{log}}(10^{25}, & & \\ \end{array}$
B4	$v = \sqrt{\frac{2}{m}} \left(E - U - \frac{2}{2mr^2} \right)$	E Energy U Potential energy L Angular momentum Distance Orbital period	J J $N \cdot m$ m s	$kg \cdot m^2 \cdot s^2$ $kg \cdot m^2 \cdot s^{-2}$ $kg \cdot m^2 \cdot s^{-2}$ m s	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F	$\mathcal{U}(8, 12)$ $\mathcal{U}(1, 3)$ $\mathcal{U}(1, 3)$ $\mathcal{U}(1, 3)$ $\mathcal{U}(1, 3)$	$egin{aligned} \mathcal{U}_{ m log}(10^{25},\ \mathcal{U}_{ m log}(10^{8},\ \mathcal{U}$
B5	$t = \frac{2\pi d^{3/2}}{\sqrt{G(m_1 + m_2)}}$	Orbital period d Semimajor axis of elliptical orbit G Gravitational constant m_1 Mass (The Earth) m_2 Mass (The Earth)	m $m^3 \cdot kg^{-1} \cdot s^{-2}$ kg kg	g m $kg^{-1} \cdot m^3 \cdot s^{-2}$ kg kg	V, F, P V, F, P V, F, P V, F, P	V, F, P C, F, P V, F, P V, F, P	$\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$ $\mathcal{U}(1,3)$	$\mathcal{U}_{\log}(10^8, 10^8) = 0.674 \times 10^{10} = 0.000000000000000000000000000000000$
		C Orbital eccentricity E Energy E Energy L Distance	1 J J	$kg \cdot m^2 \cdot s^{-2}$ $kg \cdot m^2 \cdot s^{-2}$ m	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F V, F, P V, F, P	N/A $U(1,3)$ $U(1,3)$ $U(1,3)$	N/A $\mathcal{U}_{\log}(10^{-18},$ $\mathcal{U}_{\log}(10^{-18},$ $\mathcal{U}_{\log}(10^{-10},$
В6	$\alpha = \sqrt{1 + \frac{\sum Z_2 Z_2}{m(Z_1 Z_2 q^2)^2}}$	$m = ext{Mass}$ $Z_1 = ext{Atomic number}$ $Z_2 = ext{Atomic number}$ $Z_3 = ext{Electric charge}$	$egin{array}{c} kg & 1 & & & & & & & & & & & & & & & & & $	$egin{array}{c} kg & 1 & & \ 1 & & \ s\cdot A & & \end{array}$	V, F, P V, F, P V, F, P V, F, P	V, F, P V, I, P V, I, P V, F	U(1,3) U(1,3) U(1,3) U(1,3)	$\mathcal{U}_{\log}(10^{-30}, \ \mathcal{U}_{\log}(10^{0}, \ \mathcal{U}_{\log}(10^{0}, \ \mathcal{U}_{\log}(10^{-11}, \ \mathcal{U}_{\log}(10$
В7	$H = \sqrt{\frac{8\pi G\rho}{3} - \frac{k_{\rm f}c^2}{a_{\rm f}^2}}$	H Hubble's constant G Gravitational constant G Density of the universe G Spacetime curvature	$m^{3} \cdot kg^{-1} \cdot s^{-2} \\ kg/s^{3} \\ 1/m^{2}$	s^{-1} $kg^{-1} \cdot m^3 \cdot s^{-2}$ $kg \cdot s^{-3}$ m^{-2}	V, F, P V, F, P V, F, P V, F, P	V, F, P C, F, P V, F, P V, I	N/A ${\cal U}(1,3)$ ${\cal U}(1,3)$ ${\cal U}(1,2)$	$N/A = 0.674 \times 10^{-28} , \ \mathcal{U}_{\mathrm{log}}(10^{-28}, \ \mathcal{U}(-1, \)$
	, .	$egin{array}{lll} Speed of light & & & & & & & & & & & & & \\ a_f & Radius & & & & & & & & & & & & & & & & & & &$	$\frac{m/s}{m}$ J $m^3 \cdot kg^{-1} \cdot s^{-2}$	$m \cdot s^{-1}$ m $kg \cdot m^2 \cdot s^{-2}$ $kg^{-1} \cdot m^3 \cdot s^{-2}$	V, F, P V, F, P V, F, N V, F, P	C, F, P V, F, P V, F, N C, F, P	${{\cal U}(1,2) \over {\cal U}(1,3)} {{ m N/A} \over {\cal U}(1,2)}$	$2.998 \times \ \mathcal{U}_{\log}(10^{22}, \ \mathrm{N/A} \ 6.674 \times 10^{22})$
В9	$P = -\frac{32}{5} \frac{G^4}{c^5} \frac{(m_1 m_2)^2 (m_1 + m_2)}{r^5}$	m_1 Mass m_2 Mass Distance	$m/s \ kg \ m$	$m \cdot s^{-1}$ kg kg m	V, F, P V, F, P V, F, P V, F, P	C, F, P V, F, P V, F, P V, F, P	$\mathcal{U}(1,2)$ $\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$ $\mathcal{U}(1,2)$	$2.998 \times \ \mathcal{U}_{\log}(10^{23}, \ \mathcal{U}_{\log}(10^{23}, \ \mathcal{U}_{\log}(10^{23}, \ \mathcal{U}_{\log}(10^{8}, $
B10	$\cos \theta_1 = \frac{\cos \theta_2 - v/c}{(1 - v/c)\cos \theta_2}$	$\cos heta_1$ Value $ heta_2$ Angle $ heta_2$ Velocity $ heta_2$ Speed of light	$1 \\ rad \\ m/s \\ m/s$	$1\\1\\m\cdot s^{-1}\\m\cdot s^{-1}$	V, F V, F, P V, F, P V, F, P	V, F V, F, NN V, F C, F, P	N/A ${\cal U}(1,3)$ ${\cal U}(1,3)$ ${\cal U}(4,6)$	N/A ${\cal U}(0,\pi)$ ${\cal U}_{\log}(10^6,$ $2.998 \times$
B11	$I = I_0 \left(\frac{\sin(\alpha/2)}{\alpha/2} \frac{\sin(N\delta/2)}{\sin(\delta/2)} \right)^2$	Wave intensity I_0 Amplitude of wave Wavelength of X-ray Number of phase difference	1 1 m 1	1 1 m 1	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F, P V, I, P	$\mathcal{U}(1,3)$ $\mathcal{U}(1,2)$	$\mathcal{U}_{\log}(10^0,$
B12	$F = \frac{q}{4\pi\epsilon y^2}$	Wavelength of X-ray F Force G Electric charge Permittivity	m N C F/m	$\frac{m}{kg \cdot m \cdot s^{-2}}$ $s \cdot A$ $kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2$		V, F V, F V, F, P	N/A $\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$	$egin{aligned} \mathcal{U}_{ m log}(10^{-11}) & & & & & \\ \hline N/A & & & & & & \\ \mathcal{U}_{ m log}(10^{-3}), & & & & & \\ \mathcal{U}_{ m log}(10^{-12}), & & & & & \\ \end{bmatrix}$
	$\left(\frac{4\pi\epsilon v_{\rm e}u - (y^2 - d^2)^2}{(y^2 - d^2)^2}\right)$	$V_{ m e}$ Distance $V_{ m e}$ Voltage $V_{ m e}$ Distance $V_{ m e}$ Potential	m V m V F/m	$ \begin{array}{c} m \\ kg \cdot m^2 \cdot s^{-3} \cdot A^{-1} \\ m \\ kg \cdot m^2 \cdot s^{-3} \cdot A^{-1} \\ kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2 \end{array} $	V, F, P V, F, P	V, F, P V, F V, F, P	$ \begin{array}{c} \mathcal{U}(1,3) \\ \mathcal{U}(1,5) \\ \mathcal{U}(4,6) \\ \hline N/A \\ \mathcal{U}(1,5) \end{array} $	$\frac{\mathcal{U}_{\log}(10^{-1} \\ \mathcal{U}_{\log}(10^{-2} \\ \text{N/A})$
B13	$V_{\rm e} = \frac{q}{4\pi\epsilon\sqrt{r^2 + d^2 - 2dr\cos\alpha}}$	permittivity Electric charge Distance Distance between dipoles	F/m C m m	$kg^{-1} \cdot m^{-3} \cdot s^4 \cdot A^2$ $s \cdot A$ m m	V, F, P V, F, P V, F, P	V, F, P	U(1,5) U(1,3) U(4,6)	$\mathcal{U}_{\log}(10^{-2} \\ \mathcal{U}_{\log}(10^{-2}$
B14	$V_c = E_c \cos \theta \left(\frac{\alpha - 1}{r^2} \frac{d^3}{d^3} - r \right)$	$egin{array}{lll} lpha & & & & & & & & & & & & & & & & & & &$	$egin{array}{c} rad \ V \ V/m \ rad \ m \end{array}$	$ \begin{array}{c} 1 \\ kg \cdot m^2 \cdot s^{-3} \cdot A^{-1} \\ kg \cdot m \cdot s^{-3} \cdot A^{-1} \\ 1 \\ m \end{array} $	V, F V, F, P V, F, NN	V, F, NN V, F V, F V, F, NN V F P	N/A $\mathcal{U}(1,5)$ $\mathcal{U}(0,6)$	N/A $\mathcal{U}_{\mathrm{log}}(10^{1},$ $\mathcal{U}(0,\pi)$
		Distance Radius of dielectric sphere Polarizability Frequency of electromagnetic waves	$m \\ m \\ 1 \\ rad/s$	$ \begin{array}{c} m\\ m\\ 1\\ \hline s^{-1}\\ \\ \end{array} $	V, F, P V, F, P V, F, P	V, F	$ \begin{array}{c} \mathcal{U}(1,5) \\ \mathcal{U}(1,5) \\ \mathcal{U}(1,5) \end{array} $ $ \begin{array}{c} N/A \\ \mathcal{U}(1,2) \end{array} $	$\frac{\mathcal{U}_{\log}(10^{-2} \\ \mathcal{U}_{\log}(10^{-1} \\ \text{N/A})$
B15	$\omega_0 = \frac{\sqrt{1 - \frac{v^2}{c^2}}}{1 + \frac{v}{c}\cos\theta}\omega$	Velocity Speed of light Frequency of electromagnetic waves Angle	m/s m/s rad/s rad	$m \cdot s^{-1}$ $m \cdot s^{-1}$ s^{-1} 1		V, F, P V, F, NN) $2.998 \times \ \mathcal{U}_{\log}(10^9, \ \mathcal{U}(0, 27))$
B16	$E = qV_{\rm e}$	E Energy Momentum Electric charge Vector potential	J $kg\cdot m/s$ C $V\cdot s/m$	$kg \cdot m^2 \cdot s^{-2}$ $kg \cdot m \cdot s^{-1}$ $s \cdot A$ $kg \cdot m \cdot s^{-2} \cdot A \cdot -1$	V, F, P V, F, P V, F, P V, F, P	V, F V, F V, F V, F	N/A $U(1,5)$ $U(1,5)$ $U(1,5)$	N/A $\mathcal{U}_{\mathrm{log}}(10^{-9},$ $\mathcal{U}_{\mathrm{log}}(10^{-11},$ $\mathcal{U}_{\mathrm{log}}(10^{1},$
	$+\sqrt{(p-qA)^2c^2+m^2c^4}$	c Speed of light m Mass $V_{\rm e}$ Voltage E Energy	m/s kg V J	$m \cdot s^{-1}$ kg $kg \cdot m^2 \cdot s^{-3} \cdot A^{-1}$ $kg \cdot m^2 \cdot s^{-2}$	V, F, P V, F, P V, F, P V, F, P	C, F, P V, F, P V, F	${\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal U}(1,5) \ {\cal N}/A$	$2.998 \times \ \mathcal{U}_{\log}(10^{-30}, \ \mathcal{U}_{\log}(10^{-1} \ m N/A)$
B17	$E = \frac{1}{2m}$ $\left(p^2 + m^2 \omega^2 x^2 \left(1 + \alpha \frac{x}{y}\right)\right)$	m Mass ν Momentum ν Frequency of electromagnetic waves ν Position	$kg \ kg \cdot m/s \ rad/s \ m$	$kg \cdot m \cdot s^{-1}$ s^{-1} m	V, F, P V, F, P V, F, P V, F, P	V, F, P V, F V, F, P V, F	$\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$ $\mathcal{U}(1,5)$	$\mathcal{U}_{\mathrm{log}}(10^{-30},\ \mathcal{U}_{\mathrm{log}}(10^{-9},\ \mathcal{U}_{\mathrm{log}}(10^{9},\ \mathcal{U}_{\mathrm{log}}(10^{-11},\ \mathcal{U}_{\mathrm{log}}(10^{-11}$
	1	Deviation from the harmonic oscillator Distance p_f Pressure Gravitational constant	$ \begin{array}{c} 1\\ m\\ Pa\\ m^3 \cdot kg^{-1} \cdot s^{-2} \end{array} $	$\begin{matrix} 1\\ m\\ kg\cdot m^{-1}\cdot s^{-2}\\ kg^{-1}\cdot m^3\cdot s^{-2}\end{matrix}$	V, F, P V, F, P V, F V, F, P	V, F V, F, P V, F C, F, P	${{\cal U}(1,5) \over {{\cal U}(1,5)} \over { m N/A} \over {{\cal U}(1,5)}$	$ \begin{array}{r} \mathcal{U}_{\log}(10^{-1}) \\ \mathcal{U}_{\log}(10^{-11}) \\ \hline N/A \\ 6.674 \times 10^{-10} \end{array} $
B19	$p_{\rm f} = -\frac{1}{8\pi G}$ $\left(\frac{c^4 k_{\rm f}}{a_{\rm f}^2} + c^2 H^2 \left(1 - 2\alpha\right)\right)$	Speed of light k_f Variable μ_f Distance μ Hubble's Constant	m/s 1 m $1/s$	$m \cdot s^{-1}$ 1 m s^{-1}	V, F, P V, F, P V, F, P V, F, P	C, F, P V, F V, F, P V, F, P	U(1,5) U(1,5) U(1,5) U(1,5)	$2.998 imes \ \mathcal{U}_{\log}(10^{1}, \ \mathcal{U}_{\log}(10^{8}, \ \mathcal{U}_{\log}(10^{0}, \ \mathcal{U}_{\log}(10^{0},$
	0.0	Variable Differential cross section Fine structure constant Planck constant	$\frac{1}{m^2/sr}$ 1 $J \cdot s$	$\frac{1}{m^2}$ 1 $kg \cdot m^2 \cdot s^{-1}$	V, F, P V, F V, F, P V, F, P	V, F V, F, P C, F, P C, F, P	U(1,5) N/A $U(1,5)$ $U(1,5)$	$U(-10, N/A)$ 7.297×1 6.626×10
	<u> </u>	m Electron mass	kg	kg	V, F, P	C, F, P	$\mathcal{U}(1,5)$	