Constants and Formulæ:

Earth's gravitational field: $g = 9.81\text{m/s}^2$
permittivity of vacuum: $\epsilon_0 = 8.85 \times 10^{-12}\,\text{C}^2\cdot\text{N}^{-1}\cdot\text{m}^{-2}$
Coulomb's Law constant: $k_e = 1/4\pi\epsilon_0 = 8.99 \times 10^9\,\text{N}\cdot\text{m}^2/\text{C}^2$
permeability of vacuum: $\mu_0 = 4\pi \times 10^{-7}\,\text{T}\cdot\text{m/A}$
speed of light: $c = 2.998 \times 10^8\,\text{m/s}$
electronic charge: $e = 1.602 \times 10^{-19}\,\text{C}$
electron mass: $m_e = 9.11 \times 10^{-31}\,\text{kg}$
proton mass: $m_p = 1.67 \times 10^{-27}\,\text{kg}$

$v_x = v_{0x} + a_x t$

$x = x_0 + v_{0x} t + \frac{1}{2} a_x t^2$

$a_r = \dfrac{v^2}{r}$

$K = \frac{1}{2} m v^2$

$\mathbf{F} = \dfrac{k_e q_1 q_2}{r^2} \hat{\mathbf{r}}$

$\mathbf{F} = q_0 \mathbf{E}$

$\mathbf{E} = \dfrac{k_e q}{r^2} \hat{\mathbf{r}}$

infinite plane: $|\mathbf{E}| = \dfrac{\sigma}{2\epsilon_0} = 2\pi k_e \sigma$

$\Phi_E \equiv \int \mathbf{E} \cdot \mathbf{dA}$ $\Phi_B \equiv \int \mathbf{B} \cdot \mathbf{dA}$

$\Phi_E = \dfrac{Q_{enclosed}}{\epsilon_0} = 4\pi k_e Q_{enclosed}$

conductor: $|\mathbf{E}| = \dfrac{\sigma}{\epsilon_0} = 4\pi k_e \sigma$

$\Delta V = \dfrac{\Delta U}{q_0} = -\int_A^B \mathbf{E} \cdot \mathbf{ds}$

$V = \dfrac{k_e q}{r}$

$V = \int \dfrac{k_e\, dq}{r}$

$U = k_e \dfrac{q_1 q_2}{r}$

$C \equiv \dfrac{Q}{\Delta V} = \epsilon_0 \dfrac{A}{d} = \dfrac{A}{4\pi k_e d}$

$U = \dfrac{Q^2}{2C}$

$C_{series}^{-1} = C_1^{-1} + C_2^{-1} + C_3^{-1} + \cdots$

$C_{parallel} = C_1 + C_2 + C_3 + \cdots$

$R_{parallel}^{-1} = R_1^{-1} + R_2^{-1} + R_3^{-1} + \cdots$

$R_{series} = R_1 + R_2 + R_3 + \cdots$

$J = \dfrac{I}{Area} = n q v_d = \sigma E$

resistivity $\rho = \dfrac{1}{\sigma} = \dfrac{RA}{\ell}$

$V = IR, \qquad P = VI$

$I(t) = I_0 e^{-t/\tau}$ or $I(t) = I_f(1 - e^{-t/\tau})$

$\tau = RC$ or $\tau = L/R$

$\mathbf{F}_B = q\mathbf{v} \times \mathbf{B}$

$\mathbf{F}_B = \int I \mathbf{ds} \times \mathbf{B}$

$\tau(\text{loop}) = I\mathbf{A} \times \mathbf{B} = \vec{\mu} \times \mathbf{B}$

$d\mathbf{B} = \dfrac{\mu_0}{4\pi} \dfrac{I \mathbf{ds} \times \hat{\mathbf{r}}}{r^2}$

straight wire: $B = \dfrac{\mu_0 I}{2\pi r}$

solenoid: $B = \mu_0 I \dfrac{N}{\ell}$

$\oint \mathbf{B} \cdot d\mathbf{s} = \mu_0 I_{\text{enc}}$

$\mathcal{E} = -\dfrac{d\Phi_B}{dt}\,, \qquad \mathcal{E} = B\ell v$

$L \equiv N\Phi_B / I$

$\mathcal{E} = -L \dfrac{dI}{dt}$

$U = \frac{1}{2} L I^2$

$\omega = 2\pi f = \dfrac{2\pi}{T}\,,\ \ k = 2\pi/\lambda$

$y = A \sin(kx \pm \omega t - \phi)$

$v = f\lambda = \dfrac{\omega}{k}$

$v = \sqrt{F_T/\mu}$

$\Delta\phi = 2\pi \dfrac{\Delta r}{\lambda}$

$d \sin\theta = m\lambda\,,\ \ a \sin\theta = m\lambda\,,\ \ \theta \approx 1.22\lambda/D$

$\sin a + \sin b = 2\cos(\dfrac{a-b}{2})\sin(\dfrac{a+b}{2})$

$\cos a + \cos b = 2\cos(\dfrac{a-b}{2})\cos(\dfrac{a+b}{2})$

sphere: $A = 4\pi r^2$, $V = \frac{4}{3}\pi r^3$

cylinder: $A = 2\pi r^2 + 2\pi r L$, $V = \pi r^2 L$

THE END