

$$\vec{\omega} \left[\frac{\text{rad}}{\text{s}} \right] = \frac{\delta\theta}{\delta t};$$

$$\int_1^t \left(\omega = \frac{1}{t} \right) \delta t_i \implies \theta[\text{rad}] \propto \ln(t); t[\text{s}] \propto \exp(\theta) : \theta(1) = 0 \quad (1)$$

$$\int_{t_0}^t \left(\omega = f \left[\frac{1}{\text{s}} \right] \right) \delta t_i \implies \Delta\theta = \ln \left(\frac{t}{t_0} \right); t = t_0 \exp(\Delta\theta) \quad (2)$$

$$\int_{t_0}^T \left(\omega = \frac{2\pi}{T[\text{s}]} \right) \delta t_i \implies \frac{\theta}{2\pi} = 1 - \frac{t_0}{T} \quad (3)$$

$$\int_{t_0}^t \left(\omega = \frac{\theta_0}{t} \right) \delta t_i \implies \frac{\theta}{\theta_0} = \ln \left(\frac{t}{t_0} \right) = \ln \left(\frac{f_0}{f} \right) \quad (4)$$

$$\vec{\theta}[\text{rad}] = 4\pi; \vec{\theta}_0[\text{rad}] = 2\pi; t_0[\text{s}] = 1;$$

$$t = T_0 = \exp(2) \quad (5)$$

$$\int \left(\omega = \frac{1}{t} \right) \delta t \implies \theta = \ln(t) + C : C \in \mathbb{R} \quad (6)$$

$$\theta = \ln(t) + C \implies t = K \exp(\theta) : K > 0 \quad (7)$$

$$\int_{t_0}^t \left(v \left[\frac{\text{m}}{\text{s}} \right] = \frac{r_0[\text{m}]}{t} \right) \delta t_i \implies \frac{r}{r_0} = \ln \left(\frac{t}{t_0} \right) \quad (8)$$

$$\frac{x}{y} \implies \int_{y_0}^y \left(\frac{\delta x}{\delta y} = \frac{x_0}{y} \right) \delta y_i \implies \frac{x}{x_0} = \ln \left(\frac{y}{y_0} \right) \quad (9)$$

$$\frac{x}{y} \implies \int_{y_0}^y \left(\frac{\delta x}{\delta y} = \frac{x}{y_0} \right) \delta y_i \implies \frac{y}{y_0} = 2 \quad (10)$$

$$xy \implies \int_{y_0}^y (x_0 y = \delta(xy)) \delta y_i \implies x_0 - \delta x = \frac{2\delta y}{y + y_0} \quad (11)$$

$$x \implies \int_{x_0}^x (\delta x = x) \delta x_i \implies x + x_0 = 2\delta x \quad (12)$$

$$\delta(\theta = \ln(t)) \implies \delta\theta = \frac{\delta t}{t} \quad (13)$$

$$\delta(t = \exp(\theta)) \implies \delta t = \exp(\theta)\delta\theta \quad (14)$$

$$\sin(\theta) \approx \tan(\theta) \approx \theta \implies \theta = \sin(\ln(t)) = \tan(\ln(t)) : \theta = \delta\theta \quad (15)$$

$$\cos(\theta) \approx 1 \approx 1 - \frac{\theta^2}{2} \implies 1 = 1 - \frac{\theta^2}{2} = \cos(\ln(t)) : \theta = \delta\theta \quad (16)$$

$$1 = 1 - \frac{(\ln(t))^2}{2} = \cos(\ln(t)) : t = \delta t \quad (17)$$

$$\frac{(\delta\theta)^2}{2} = 0 \implies \frac{(\ln(\delta t))^2}{2} = 0 \quad (18)$$

$$t = \frac{1}{1 - \frac{\theta}{1 + \theta - \frac{2\theta}{2 + \theta - \frac{3\theta}{3 + \theta - \frac{4\theta}{4 + \theta - \dots}}}}} \quad (19)$$

$$\theta = \ln\left(\frac{r}{v}\right) \implies \theta = \ln\left(\frac{\sqrt{x^2 - y^2}}{\omega\sqrt{y^2 - x^2}}\right) = \ln\left(\frac{\sqrt{y^2 - x^2}}{\omega\sqrt{x^2 - y^2}}\right) \quad (20)$$

$$\text{li}(x[\text{s}]) = \int_0^x \left(\frac{1}{\ln(t)} = \frac{1}{\theta}\right) \delta t_i : x \in (0, 1) \cup (1, \infty) \quad (21)$$

$$\text{Ei}(x[\text{rad}]) = \int_{-\infty}^x \left(\frac{\exp(\theta)}{\theta} = \frac{t}{\theta}\right) \delta\theta_i : x \in (0, \infty) \quad (22)$$

$$\mathcal{L}\{f\}(\theta) = \int_0^\infty f(x)t^{-x}\delta x_i : \theta \in \mathbb{C} \quad (23)$$

$$\hat{f}(\xi) = \int_{-\infty}^\infty (f(x)\exp(-i2\pi\xi x) = f(x)T^{-i\xi x})\delta x_i : \xi \in \mathbb{R} \quad (24)$$

$$\pi[\text{rad}] : \gtrsim 3.142;$$

$$T_c[\text{rad}] = \exp(2\pi) \quad (25)$$

$$t_P[\text{s}] : \gtrsim 5.391 \times 10^{-44};$$

$$\Theta[\text{rad}] = \ln(t_P) \quad (26)$$

$$(\exp(\pi) = (-1)^{-i})^2 \implies T = (-1)^{-2i} \quad (27)$$

$$\nu \left[\frac{1}{\text{s}} \right] = \frac{1}{T} \implies \nu[\text{rad}] = \frac{1}{\exp(2\pi)} \quad (28)$$

$$c \left[\frac{\text{m}}{\text{s}} \right] : \lesssim 2.997 \times 10^8;$$

$$\lambda[\text{m}] = \frac{c}{\nu} \implies \lambda \left[\frac{\text{m} \cdot \text{rad}}{\text{s}} \right] = \exp(2\pi)c \quad (29)$$

$$\omega = 2\pi\nu = \frac{2\pi}{\exp(2\pi)} \quad (30)$$

$$k \left[\frac{\text{rad}}{\text{m}} \right] = \frac{2\pi}{\lambda} \implies k \left[\frac{\text{s}}{\text{m}} \right] = \frac{2\pi}{\exp(2\pi)c} \quad (31)$$

$$\xi \left[\frac{1}{\text{m}} \right] = \frac{1}{\lambda} \implies \xi \left[\frac{\text{s}}{\text{m} \cdot \text{rad}} \right] = \frac{1}{\exp(2\pi)c} \quad (32)$$

$$\omega = \frac{1}{\exp(\theta)} \implies \omega_T = \frac{1}{\exp(2\pi)} \quad (33)$$

$$\frac{\delta}{\delta t}(1 = \omega \exp(\theta)) \implies \alpha = -\omega^2 \quad (34)$$

$$\alpha_T = -\frac{1}{\exp(4\pi)} \quad (35)$$

$$V \left[\frac{(\text{kg})\text{m}^2}{\text{As}^3} \right] = V_0 \exp \left(\frac{-t}{R \left[\frac{(\text{kg})\text{m}^2}{\text{A}^2\text{s}^3} \right] C \left[\frac{\text{A}^2\text{s}^4}{(\text{kg})\text{m}^2} \right]} \right) \quad (36)$$

$$\implies V \left[\frac{(\text{kg})\text{m}^2(\text{rad})}{\text{As}^4} \right] = V_0 \exp \left(\frac{-\exp(\theta)}{RC} \right) \quad (37)$$

$$\vec{r}[\text{m}] := s;$$

$$\delta\varepsilon_{\text{true}}[\text{dimensionless}] = \frac{\delta\ell}{\ell} \implies \delta\theta_{\text{true}} = \frac{\delta r}{r} \quad (38)$$

$$\varepsilon_{\text{true}} = \ln\left(\frac{t}{t_0}\right) \quad (39)$$

$$\theta_{\text{true}} = \ln(1 + \theta); \theta = \ln(1 + \exp(1)) \implies t_{\text{true}} = 1 + \exp(1) \quad (40)$$

$$\theta_{\text{magic}} = \arctan(\sqrt{2}) \implies t_{\text{magic}} = \exp(\arctan(\sqrt{2})) \quad (41)$$

$$g_\varphi[\text{rad}] = \ln(t) \implies t_\varphi = \exp(g_\varphi) \quad (42)$$

$$\vec{P}[\text{rad}] := \ln(1 + \sqrt{2}) + 2;$$

$$P[\text{rad}] = \frac{s}{r} \implies \theta_P = \ln(1 + \sqrt{2}) + 2 \quad (43)$$

$$q_e[\text{As}] : \lesssim 1.602 \times 10^{-19}, \varepsilon_0 \left[\frac{\text{A}^2 \text{s}^4}{(\text{kg}) \text{m}^3} \right] : \lesssim 8.854 \times 10^{-12}, \hbar \left[\frac{(\text{kg}) \text{m}^2}{\text{s}} \right] : \gtrsim 1.055 \times 10^{-34};$$

$$\alpha[\text{dimensionless}] = \frac{q_e^2}{4\pi\varepsilon_0\hbar c} \implies \alpha = \ln\left(\frac{t}{t_0}\right) \quad (44)$$

$$t_\alpha = \exp(\alpha) : t_0 = 1 \quad (45)$$

$$\vec{s}[\text{m}] := \varpi;$$

$$\frac{\delta}{\delta n}(2\varpi = r\theta) \implies v = \frac{4}{\sqrt{1-n^4}} : n \in \mathbb{R} \quad (46)$$

$$\theta = \frac{q_e^2 t}{4\pi\varepsilon_0 \hbar s} : -\theta(0) \quad (47)$$

$$h \left[\frac{(\text{kg}) \text{m}^2}{\text{s}} \right] = \lambda p \implies \int_0^t \left(\omega = \frac{2\pi\hbar}{\lambda m r} \right) \delta t_i \implies \theta = \frac{2\pi\hbar \exp(\theta)}{\lambda m r} : -\theta(0) \quad (48)$$

$$\lambda = \frac{s}{\theta} \implies \theta = \frac{sp}{h} \quad (49)$$

$$\exp\left(\theta = \frac{sp}{h}\right) \implies t^h = \exp(sp) \quad (50)$$

$$E \left[\frac{(\text{kg})\text{m}^2}{\text{s}^2} \right] = \frac{h}{T} = \frac{h}{\exp(2\pi)} \approx 1.237 \times 10^{-36} \quad (51)$$

$$\ln \left(T = \frac{h}{E} \right) \implies \theta = \ln \left(\frac{h}{E} \right) \quad (52)$$

$$(\delta E \delta t = \delta E \exp(\delta\theta)) \geq \frac{\hbar}{2} \quad (53)$$

$$P \left[\frac{(\text{kg})\text{m}^2}{\text{s}^3} \right] = \frac{\delta E}{\delta t} \implies P \left[\frac{(\text{kg})\text{m}^2}{\text{s}^2(\text{rad})} \right] = \frac{\delta E}{\exp(\delta\theta)} \quad (54)$$

$$I \left[\frac{\text{C}}{\text{s}} \right] = \frac{\delta Q}{\delta t} \implies I \left[\frac{\text{C}}{\text{rad}} \right] = \frac{\delta Q}{\exp(\delta\theta)} \quad (55)$$

$$I_T = \frac{q_e}{\exp(2\pi)} \quad (56)$$

$$\psi(\theta) = \exp(2\pi i n \theta) = T^{in\theta} \quad (57)$$

$$\delta T = \frac{\hbar}{2\delta E} \implies E = \frac{\hbar}{2\exp(2\pi)} \approx 9.846 \times 10^{-38} \quad (58)$$

$$\int_0^t (\omega = kv_p) \delta t_i \implies \theta = kr : \neg\theta(0) \vee \neg v_p(0) \quad (59)$$

$$\int_0^t \left(\omega = \frac{kc^2}{v_g} \right) \delta t_i \implies \theta = kc^2 \int_0^t \frac{\delta t_i}{v_g} : \neg\theta(0) \quad (60)$$

$$u[\text{m}] = t^i = \text{cis}(\theta) = \cos(\theta) + i \sin(\theta) \quad (61)$$

$$t^{in} = \cos(n\theta) + i \sin(n\theta) : n \in \mathbb{Z} \quad (62)$$

$$\vartheta(z, \theta)[\text{rad}] = \sum_{n \in \mathbb{R}} \exp(\pi i n^2 \theta + 2\pi i n z) : z \in \mathbb{C} \quad (63)$$

$$\vartheta(0, \theta) = \sum_{n \in \mathbb{R}} (t^{\pi i n^2} = \cos(\pi n^2 \theta) + i \sin(\pi n^2 \theta)) \quad (64)$$

$$\eta(z)[\text{rad}] = \exp\left(\frac{\pi iz}{12}\right) \prod_{n \in \mathbb{N}} (1 - \exp(2n\pi iz)) : z \in \mathbb{C} \quad (65)$$

$$\eta(\theta) = \sqrt[12]{t^{\pi i}} \prod_{n \in \mathbb{N}} (1 - t^{2n\pi i}) \quad (66)$$

$$\int_{t_0}^t \left(\omega = \frac{2\pi}{T}\right) \delta t_i \implies \theta = \frac{2\pi(t - t_0)}{T} \quad (67)$$

$$r = \langle x, y, z, ct \rangle \implies \langle x, y, z, c \cdot \exp(\theta), c \cdot \exp(\phi) \rangle \quad (68)$$

$$s[\text{m}] = r \times \ln(t) = ct \times \ln(t_{\perp}) \quad (69)$$

$$\int_0^r \cosh(r) \delta r_i = s \quad (70)$$

$$\theta(r) = \int_0^r \left(\frac{\cosh(r) - \theta}{r}\right) \delta r_i : -\theta(0); r = \text{arccosh}(\delta\theta) \quad (71)$$

$$T = 2\pi \sqrt{\frac{r^3}{GM}} \implies \omega^{-1} \left[\frac{s}{\text{rad}}\right] = \sqrt{\frac{r^3}{GM}}; \frac{1}{t^2} = \frac{GM}{r^3} \quad (72)$$

$$t = \sum_{n \in \mathbb{Z}} \sqrt[n]{\frac{n!}{\frac{\delta^n \theta}{\delta t^n}}} \quad (73)$$

$$\sum_{n \in \mathbb{Z}} \left(\sqrt[n]{\frac{n!}{\frac{\delta^n \theta}{\delta t^n}}} = \frac{\theta^n}{n!}\right) \implies \Gamma(n+1)^{n+1} = \frac{\delta^n \theta}{\delta t^n} \theta^{n^2} \quad (74)$$

$$\sum_{n \in \mathbb{Z}} \left(\frac{n^\theta}{n!^{\frac{\theta}{n}}} = \frac{\theta^n}{n!}\right) \implies n^\theta = \theta^n \Gamma(n+1)^{\frac{\theta}{n}-1} \quad (75)$$

$$\sum_{n \in \mathbb{Z}} \left(\frac{n^\theta}{n!^{\frac{\theta}{n}}} = \sqrt[n]{\frac{n!}{\frac{\delta^n \theta}{\delta t^n}}}\right) \implies \frac{\delta^n \theta}{\delta t^n} n^{n\theta} = \Gamma(n+1)^{\theta+1} \quad (76)$$

$$\theta = \lim_{n \rightarrow \infty} \Gamma(n+1) D^{-n} t^{-n} \mid D^{-n} : t \mapsto \int_0^t \frac{f(x)(t-x)^{n-1}}{\Gamma(n)} \delta x_i \quad (77)$$

$$a_c \left[\frac{\text{m}}{\text{s}^2} \right] = \omega^2 r \implies \alpha_{\perp} = \omega^2 \quad (78)$$

$$\frac{\delta}{\delta t} (a_c = \omega^2 r) \implies \zeta_{\perp} \left[\frac{\text{rad}}{\text{s}^3} \right] = 3\omega^3 \quad (79)$$

$$\frac{\delta^n \theta_{\perp}}{\delta t^n} = \frac{3\Gamma(n)\omega^n}{2} : n \geq 3 \quad (80)$$

$$\omega^2 = 2\alpha\theta \implies \alpha_{\perp} \left[\frac{\text{rad}}{\text{s}^2} \right] = 2\alpha\theta : \neg\omega(0) \quad (81)$$

$$\int_0^t (\alpha_{\perp} = 2\alpha\theta)\delta t_i \implies \omega_{\perp} = 2 \int_0^t \alpha\theta\delta t_i : \neg\omega_{\perp}(0) \vee \neg\omega(0) \quad (82)$$

$$\int_0^t \left(\frac{\delta E}{\delta t} \right) \delta t_i = \tau\omega \implies E = I \int_0^t \alpha\omega\delta t_i : \neg E(0) \quad (83)$$

$$\frac{mv^2}{2} = mgr \implies \omega^2 r = 2g \quad (84)$$

$$r_s = \frac{2GM}{c^2} \implies \omega^2 = \frac{2GM}{r^3} ; t = \frac{2GM}{c^3} \quad (85)$$

$$V_s[\text{m}^3] = \frac{4\pi r^3}{3} \implies \omega^2 = \frac{8\pi GM}{3V} \quad (86)$$

$$\vec{I}_P \left[(\text{kg})\text{m}^2 \right] := mr^2;$$

$$E = mc^2 = \hbar\omega = m(\omega r)^2 \implies L \left[\frac{(\text{kg})\text{m}^2}{\text{s}} \right] = \hbar \quad (87)$$

$$\int_0^t \left(\omega = \frac{E}{\hbar} \right) \delta t_i \implies \frac{\theta}{\hbar} = \int_0^t E\delta t_i = \int_0^t \exp(t)E\delta t_i : \neg\theta(0) \quad (88)$$

$$\tan(2\theta) = \frac{2\hbar t}{mr^2} \implies t = \ln \left(\frac{\arctan(\frac{2\hbar t}{I_P})}{2} \right) \quad (89)$$

$$\int_0^t \left(\omega = \frac{\hbar}{mr\lambda} \right) \delta t_i \implies \theta = \frac{\hbar t}{mr\lambda} : \neg\theta(0) \quad (90)$$

$$E^2 = (pc)^2 + (mc^2)^2 \implies \theta = \arctan\left(\frac{p}{mc}\right); \phi = \arctan\left(\frac{mc}{p}\right) \quad (91)$$

$$k^2 = \left(\frac{\omega}{c}\right)^2 + \left(\frac{mc}{\hbar}\right)^2 \implies \theta = \arctan\left(\frac{mc^2}{\hbar\omega}\right); \phi = \arctan\left(\frac{\hbar\omega}{mc^2}\right) \quad (92)$$

$$\phi[\text{rad}] = -\theta - \frac{\hbar k_0^2 t}{2m} \implies \phi + \theta = \frac{-\hbar k_0^2 (\exp(\phi) + \exp(\theta))}{2m} \quad (93)$$

$$\gamma[\text{rad}] := \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}};$$

$$\gamma = \cosh(\theta) \implies \theta = \operatorname{arccosh}\left(\frac{t + t^{-1}}{2}\right) \quad (94)$$

$$\gamma \in \operatorname{Cl}_{0,2}(\mathbb{R});$$

$$\gamma^2 = t^{\sigma_1 \sigma_2} \quad (95)$$

$$\eta[\text{rad}] := -\ln(\tan(\frac{\theta}{2}));$$

$$t = \ln(2) + \ln(\arctan(\exp(-\eta))) \quad (96)$$

$$\vec{I}_{BH} \left[(\text{kg})\text{m}^2 \right] := \frac{2mr^2}{3};$$

$$\int_0^t \left(\frac{\hbar}{mr^2} = \omega \right) \delta t_i \implies I_{BH} = \frac{2\hbar t}{3\theta} : -\theta(0) \vee -t(0) \quad (97)$$

$$3\pi L = h \quad (98)$$

$$\frac{\delta}{\delta t}(3\pi L = h) \implies \frac{\pi}{h}(2cr \frac{\delta m}{\delta t} + 4mc^2 + 3\tau) = 0 \quad (99)$$

$$\vec{I}_{BH} \left[(\text{kg})\text{m}^2 \right] \in \mathbb{H};$$

$$\frac{\delta}{\delta t}(3\pi L = h) \implies \frac{3\pi}{h} \left(\frac{\delta^n L}{\delta t^n} \right) = 0 \quad (100)$$

$$\tau_{BH} \left[\frac{(\text{kg})\text{m}^2}{\text{s}^2} \right] = \tau_{\text{ext}} + \frac{2}{3} \left(\frac{\delta m}{\delta t} c_{\text{rel}} r + 2E_{\text{rel}} \right) \quad (101)$$

$$r_1^2 = \left(\frac{s}{\theta}\right)^2 + \left(\frac{s_{\perp}}{\phi}\right)^2 + r_{c1}^2 : r_{c1}^2 = \left(\frac{s^*}{\theta^*}\right)^2 + \left(\frac{s_{\perp}^*}{\phi^*}\right)^2 + r_2^2 : r^{\top} r_c = 0 \quad (102)$$

$$\neg r_n^\top r_{cn} \wedge r_n^2 = \left(\frac{s}{\theta}\right)^2 + \left(\frac{s_\perp}{\phi}\right)^2 + r_{cn}^2 : n \in \mathbb{Z} \quad (103)$$

$$\int_0^t (\alpha_\perp = \omega^2) \delta t_i \implies \omega_\perp = \int_0^t \omega^2 \delta t_i : \neg \omega_\perp(0) \quad (104)$$

$$\int_0^t \int_0^t (\alpha_\perp = \omega^2) \delta t_i \delta t_j \implies \theta_\perp = D^{-2} \omega^2 : \neg \omega_\perp(0) \vee \neg \theta_\perp(0) \quad (105)$$

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$$K_c(\text{char}^* \text{str})[\mathbb{N}] := \min_{\{0,1\}^* \mapsto \{0,1\}^*} \text{strlen}(\sigma(\text{str}), \text{sizeof}(\text{str})) \quad (106)$$

$$S_B \left[\frac{(\text{kg})\text{m}^2}{\text{s}^2\text{K}_c} \right] \leq \frac{4\pi^2 k_B r E}{hc}; S_{BH} = \frac{k_B A}{4\ell_P^2} \quad (107)$$

$$\vec{A}[\text{m}^2] := 4\pi r^2;$$

$$S_B = k_B \ln(\Omega); S_{BH} = \frac{2\pi^2 k_B r^2 c^3}{Gh} \quad (108)$$

$$rc^4 \leq 2EG; E = mc^2 \implies c^2 \leq 2\tau_g \quad (109)$$

$$\Omega[\text{dimensionless}] = \exp\left(\frac{2\pi^2 r^2 c^3}{Gh}\right) = \exp\left(\frac{4A\pi}{\kappa ch}\right) \quad (110)$$

$$\Omega = \ln\left(\frac{t}{t_0}\right) \implies t_\Omega = \exp(\Omega) : t_0 = 1 \quad (111)$$

$$\frac{\lambda_\infty}{\lambda_e} = \frac{f_e}{f_\infty} = \sqrt{\frac{1+\beta}{1-\beta}} = \ln\left(\frac{t}{t_0}\right) \quad (112)$$

$$A \left[\frac{\text{C}}{\text{s}} \oplus \frac{\text{C}}{\text{rad}} \right] \lesssim 6.789 \times 10^8 \left(\frac{q_e}{\delta t_{Cs}} = \frac{q_e}{\exp(\theta_{Cs})} \right) \quad (113)$$

$$\Psi \left[\text{m}^{\frac{-3}{2}} \right] = \exp(i\theta) \sqrt{\rho \left[\frac{1}{\text{m}^3} \right]} \implies \Psi = t^i \sqrt{\rho} \quad (114)$$

$$e = g[\text{dimensionless}] \sin(\theta_W) \implies \exp(\arcsin\left(\frac{e}{g}\right)) = t_W \quad (115)$$

$$g = \ln\left(\frac{t}{t_0}\right) \implies t_g = \exp(g) : t_0 = 1 \quad (116)$$

$$\vec{Q}_{BH}[\text{As}] := Q_N - |Q_e|;$$

$$\int_0^t \left(\frac{\delta Q}{\delta t} = Nq_e v_d A\right) \delta t_i \implies Q = Nq_e A r : \neg Q(0) \vee \neg r(0) \quad (117)$$

$$A = 4\pi r^2 \implies V[\text{m}^3] = \frac{Q}{3Ne} \quad (118)$$

$$\vec{r}[\text{m}] \in \mathbb{H};$$

$$\int_0^t \left(\frac{\delta Q}{\delta t} = Nq_e \omega r A\right) \delta t_i \implies Q = Nq_e A s : \neg Q(0) \vee \neg \omega(0) \quad (119)$$

$$\int_0^t \left(\omega \frac{\delta Q}{\delta t} = Nq_e \omega^2 r A\right) \delta t_i \implies \int_0^t \left(\frac{\delta Q}{\delta t}\right) \delta \theta_{\perp} = Nq_e A v_c : \neg v_c(0) \quad (120)$$

$$\vec{s}[\text{m}] \in \mathbb{H};$$

$$\int_1^{\theta} \left(\frac{\delta Q}{\delta t} = Nq_e \omega r A\right) \delta \theta_i \implies Q = Nq_e A s \ln(\theta) = \frac{4\pi Nq_e s^3 \ln(\theta)}{\theta^2} : \neg Q(1) \quad (121)$$

$$\int_0^t \left(\frac{\delta Q}{\delta t} = \frac{-\omega e}{\phi}\right) \delta t_i \implies Q = \frac{-\theta e}{\phi} : \neg Q(0) \vee \neg \theta(0) \quad (122)$$

$$\int_{t_0}^t \left(\frac{\delta q}{\delta t} = \frac{q_0}{t}\right) \delta t_i \implies \frac{q}{q_0} = \ln\left(\frac{t}{t_0}\right) \quad (123)$$

$$\vec{B}_s \left[\frac{\text{kg}}{\text{s}^2 \text{A}}\right] := \mu_0 n I;$$

$$\int_{t_0}^t \left(B_s = \frac{2\pi m}{qT}\right) \delta t_i \implies I = \frac{2\pi m}{\mu_0 n q T} \quad (124)$$

$$\int_{t_0}^t \left(B_s = \frac{m}{qt}\right) \delta t_i \implies \Delta Q = \frac{\ln\left(\frac{t}{t_0}\right) m}{\mu_0 n q} \quad (125)$$

$$\int_{t_0}^t \left(\omega = \frac{qB_s}{m} \right) \delta t_i \implies \Delta\theta = \frac{\mu_0 n q \Delta Q}{m} \quad (126)$$

$$4\pi\varepsilon_0 r = \frac{e}{V} = \frac{C}{\kappa} = \frac{r \cdot \delta B}{\varepsilon_0 \mu_0 \cdot \delta \ell \times \hat{r}} \quad (127)$$

$$\int_0^t (F_M = qv \times B_s) \delta t_i \implies p_M = \mu_0 q n \int_0^t \frac{\delta Q}{\delta t} v \delta t_i : \neg p_M(0) \quad (128)$$

$$r \times \tau_E = \frac{q_1 q_2}{4\pi\varepsilon_0} \implies W \left[\frac{(\text{kg})\text{m}^2}{\text{s}^2} \right] = \frac{q_1 q_2}{4\pi\varepsilon_0 s}; p_E = \frac{q_1 q_2 t}{4\pi\varepsilon_0 r} \quad (129)$$

$$\frac{\delta}{\delta t} \left(\frac{\tau}{B} = \frac{Q_e L}{2M_e} \right) \implies \frac{\delta \tau}{\delta t} \left[\frac{(\text{kg})\text{m}^2}{\text{s}^3} \right] = \frac{B L I_e + Q_e (\tau B - L \text{curl}(E))}{2M_e} \quad (130)$$

$$\frac{\delta}{\delta t} \left(\frac{-U}{B} = \frac{Q_e L}{2M_e} \right) \implies \frac{\delta W}{\delta t} \left[\frac{(\text{kg})\text{m}^2}{\text{s}^3} \right] = \frac{Q_e (\tau B - L \text{curl}(E)) - B L I_e}{2M_e} \quad (131)$$

$$\frac{\delta \tau}{\delta t} = - \frac{\delta W}{\delta t} \quad (132)$$

$$\frac{\delta}{\delta t} \left(\gamma_e L = \frac{Q_e L}{2M_e} \right) \implies \frac{I_e}{2\gamma_e M_e} = 0 \quad (133)$$

$$\vec{L} \left[\frac{(\text{kg})\text{m}^2}{\text{s}} \right] := J - S.$$

$$r^2 + (ct)^2 = J^2 - 2JS + S^2 \quad (134)$$

$$\theta = 2 \arccos \left(\frac{r}{L} \right) \implies \omega = \frac{2(\tau r - cL)}{L^2 \sqrt{1 - \left(\frac{r}{L} \right)^2}} \quad (135)$$

$$\omega^2 = \alpha_{\perp} = \frac{4(\tau r - cL)}{L^4 \left(1 - \left(\frac{r}{L} \right)^2 \right)} \quad (136)$$

$$\vec{r}[\text{m}] \in \mathbb{H}, \vec{h}[\text{m}] := ct, \vec{\ell}[\text{m}] := \omega r t;$$

$$r^2 + (ct)^2 = (\omega r t)^2 \implies r = t \sqrt{(\omega r)^2 - c^2} \quad (137)$$

$$\begin{aligned}\vec{r}[\text{m}] &:= \omega r t, \vec{h}[\text{m}] := ct, \vec{\ell}[\text{m}] := \omega^2 r t^2; \\ r^2 + (ct)^2 &= (\omega^2 r t^2)^2 \implies r = t \sqrt{(\omega^2 r t^2)^2 - c^2}\end{aligned}\quad (138)$$

$$\begin{aligned}\vec{\ell}[\text{m}] &:= \omega^n r t^n : n \in \mathbb{Z}; \\ r^2 + (ct)^2 &= (\omega^n r t^n)^2 \implies r = t^{\frac{n}{2}} \sqrt{\omega^{2n} r^2 t^n - c^2}\end{aligned}\quad (139)$$

$$\begin{aligned}\vec{h}[\text{state}] &= \frac{\hbar}{2}, \vec{\ell}[\text{state}] = \frac{\hbar\sqrt{3}}{2}; \\ r &= \frac{\hbar}{\sqrt{2}} = s_{\perp}[\text{state}]\end{aligned}\quad (140)$$

$$\begin{aligned}\vec{\sigma} \left[\frac{(\text{kg})}{\text{ms}^2} \right] &:= \frac{1}{\beta_S c^2}; \\ \beta_S &= \frac{4\pi}{F\omega^2} \implies \tau = \frac{4\pi r}{\beta_S \omega^2}\end{aligned}\quad (141)$$