$\frac{1}{s^2}Tanh(\frac{as}{2})$

$$L\{f(t)\} = \frac{1}{1-e^{-sT}}[\int\limits_0^a te^{-st}dt \ + \ \int\limits_a^{2a}(2a-t)e^{-st}dt] \tag{1}$$

$$\frac{1}{1-e^{-s2a}}[(\frac{te^{-st}}{-s} + \frac{e^{-st}}{-s^2})_0^a + (\frac{2ae^{-st}}{-s})_a^{2a} - (\frac{te^{-st}}{-s} - \frac{e^{-st}}{s^2})_a^{2a}] \tag{2}$$

Solving Laplace transforms with integrals. Described in *Equation* 2

$$\begin{array}{l} f(0) = f(1) \rightarrow Constant \\ factorizing\ we\ get: |\psi_c\rangle = \frac{1}{2}\left(|0_1\rangle - |1_1\rangle\right)\left(|f(0)_2\rangle - \left|\overline{f(0)_2}\right\rangle\right) \\ If{:}f(0) = \overline{f(1)} \rightarrow Balanced \\ factorizing\ we\ get: |\psi_c\rangle = \frac{1}{2}\left(|0_1\rangle + |1_1\rangle\right)\left(|f(0)_2\rangle - \left|\overline{f(0)_2}\right\rangle\right) \end{array} \tag{3}$$

$$\frac{1}{2}L[\sin t(\cos t - \cos 5t)] \tag{4}$$

$$\frac{\partial\psi}{\partial t} = -jw\psi_0 e^{-jwt} = -j2\pi\left(\frac{E}{H}\right)\psi_0 e^{-jwt} \tag{5}$$

$$\frac{1}{\sqrt{2^n}}\sum_{x=0}^{2^n-1}(-1)^{f(x)}\left[\frac{1}{\sqrt{2^n}}\sum_{y=0}^{2^n-1}(-1)^{x\cdot y}|y\rangle\right] = \frac{1}{2^n}\sum_{y=0}^{2^n-1}\left[\sum_{x=0}^{2^n-1}(-1)^{f(x)}(-1)^{x\cdot y}\right]|y\rangle] \tag{6}$$

Equations that Changed the world *(Few Mentions)*

$$\alpha^2 + \beta^2 = \gamma^2$$

$$\log(xy) = \log x + \log y$$

$$F = G\frac{m_1 m_2}{r^2}$$

$$\Phi(x) = \frac{1}{\sqrt{2\pi\sigma}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$$

$$f(w) = \int\limits_{-\infty}^{\infty} f(x) e^{-2\pi i x w} dx$$

$$\nabla \cdot E = \frac{\rho}{\varepsilon_0}$$

$$\nabla \times B = \mu_0 \left(J + \varepsilon_0 \frac{\partial E}{\partial t} \right)$$

$$H = -\sum p(x) \log p(x)$$