Revised 12/12/12

A. *Einstein mass/energy:*

$$E_0 = mc^2$$

B. *Maxwell's Equations in Vacuum:*

$$\begin{array}{ll} \nabla \cdot \mathbf{B} = 0 & \nabla \cdot \mathbf{E} = 0 \\ \nabla \times \mathbf{B} = \frac{1}{c}\frac{\partial \mathbf{E}}{\partial t} & \nabla \times \mathbf{E} = -\frac{1}{c}\frac{\partial \mathbf{B}}{\partial t} \end{array}$$

C. *Stokes' Theorem*

$$\int_M d\omega = \int_{\partial M} \omega$$

D.

$$\{Q, Q\} = P$$

E. *Primes and the zeta function:*

$$\sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_p \frac{1}{1 - \frac{1}{p^s}}$$

F. *Heisenberg Uncertainty Principle:*

$$\Delta x \Delta p \geq \hbar/2$$

G. *Kepler's Second Law*

$$\frac{d\theta}{dt} \propto \frac{1}{r^2}$$

H. *Kepler's Third Law*

$$T^2 \propto a^3$$

I. *Newton's Law of Gravitation:*

$$F = \frac{Gm_1m_2}{r^2}$$

J. *Newton's Law*

$$\mathbf{F} = m\mathbf{a}$$

K. *Einstein's General Relativity Equation:*

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = 8\pi GT_{\mu\nu}$$

L *Schrödinger's Equation:*

$$i\hbar\frac{\partial\psi}{\partial t} = -\frac{\hbar^2}{2m}\nabla^2\psi + V\psi$$

M. *Dirac Equation:*

$$(i\not{D} - m)\,\psi = 0$$

N. *Atiyah-Singer Theorem for Twisted Dirac Operator:*

$$\dim\ker\not{D}_E - \dim\operatorname{coker}\not{D}_E = \int_M \hat{A}(M)\cdot ch(E)$$

O. *Yang-Mills equations:*

$$F_A = dA + A\wedge A$$

$$D_A^*F_A = 0$$

Q. *boundary-boundary:*

$$\partial\partial = 0$$