

1F. *Primes and the zeta function:*

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

7F. *Newton's Law of Gravitation:*

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

11F. *Schrödinger's Equation:*

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

12F?. *Maxwell's Equations in Vacuum*

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

13F. *Einstein's Equation:*

$$E_0 = mc^2$$

14F. *Einstein's General Relativity Equation:*

$$R_{\mu\nu} - \frac{1}{2} R g_{\mu\nu} + \Lambda g_{\mu\nu} = 8\pi T_{\mu\nu}$$

16F. *Heisenberg Uncertainty Principle:*

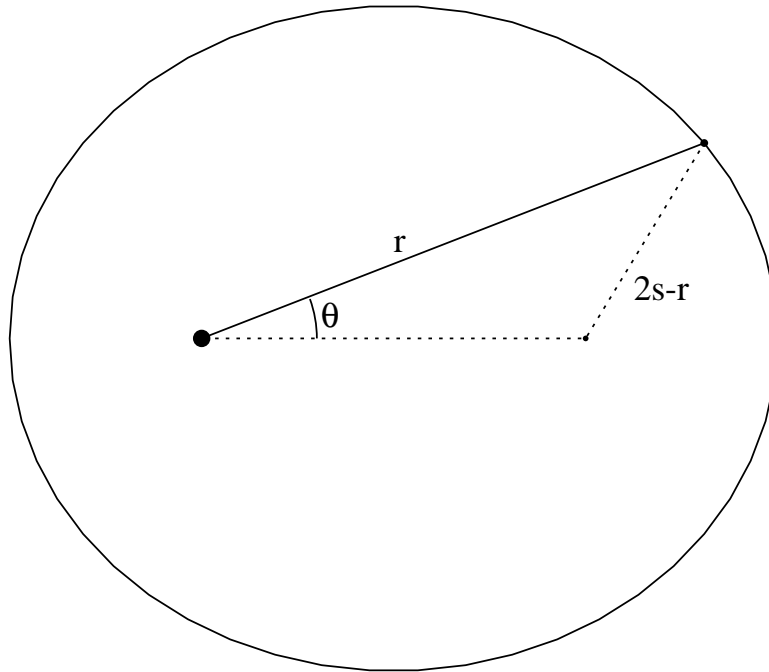
$$\Delta x \Delta p \geq \frac{\hbar}{2}$$

19F?. *Limiting ratio of Fibonacci numbers = golden mean = partial fraction expansion:*

$$\lim_{n \rightarrow \infty} \frac{F_{n+1}}{F_n} = \frac{1 + \sqrt{5}}{2} = 1 + \frac{1}{1 + \frac{1}{1 + \dots}}$$

$$\lim_{n \rightarrow \infty} \frac{F_{n+1}}{F_n} = 1 + \frac{1}{1 + \dots}$$

68. Kepler's laws:



$$r \, d\theta/dt = \text{constant}, \quad \oint dt \propto s^{3/2}$$