PHYSICS 160: Principles of Modern Physics
Spring 2009
Final Exam Equation Sheet

$$R = R_o e^{-\lambda t}$$

$$t_{1/2} = \frac{\ln 2}{\lambda} = \tau \ln 2$$

$$t_{double} = \frac{\ln 2}{\ln k} \Delta t_{avg,gen}$$

$$Q_\alpha = M_P c^2 - \left(M_D c^2 + M_{He4} c^2\right)$$

$$Q_{\beta-,EC} = M_P c^2 - M_D c^2$$

$$Q_{\beta+} = M_P c^2 - \left(M_D c^2 + 2m_e c^2\right)$$

$$K_\alpha = \frac{A_D}{A_P} Q_\alpha$$

$$t_{age} = \frac{1}{\lambda} \ln(m+1)$$