

16. We take the speed to be constant, and apply the classical kinetic energy formula:

$$\begin{aligned}t &= \frac{d}{v} = \frac{d}{\sqrt{2K/m}} = 2r\sqrt{\frac{m_n}{2K}} = \frac{r}{c}\sqrt{\frac{2mc^2}{K}} \\&\approx \frac{(1.2 \times 10^{-15} \text{ m})(100)^{1/3}}{3.0 \times 10^8 \text{ m/s}} \sqrt{\frac{2(938 \text{ MeV})}{5 \text{ MeV}}} \\&\approx 10^{-22} \text{ s} .\end{aligned}$$