

(19.4) Calculate the number of collisions required to reduce a fast fission neutron ($E_n^0 = 2 \text{ MeV}$) to thermal energy ($E_n = 0.025 \text{ eV}$) in a light-water-moderated reactor, assuming that the data in Table 19.3 are valid.

$$eV := 1.6021773 \cdot 10^{-19} \cdot \text{joule} \quad \xi := 0.927 \quad E_{0n} := 2 \cdot 10^6 \cdot eV \quad E_n := 0.025 \cdot eV$$

$$n := \xi^{-1} \cdot \ln\left(\frac{E_{0n}}{E_n}\right) + 1 \quad \text{Eqn. (19.7)} \quad n = 20.631 \quad \text{average number of collisions}$$