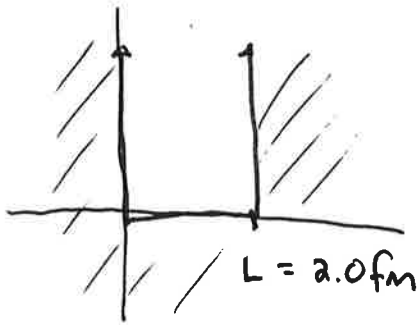


TL 7-44 (2 neutrons in an infinite square well)



- The two neutrons confined to this square well cannot have the same quantum number(s). If the

neutrons had spin, then they could have different "spin" quantum numbers, but the same "principle" quantum numbers.

- Ignoring spin, though, they will have $n=1$ & $n=2$.
- Using $E_n = \frac{\hbar^2 k_n^2}{2m}$, $k_n = \frac{n\pi}{L}$

$$E_n = \frac{\hbar^2 n^2 \pi^2}{2mL^2}$$

$$\text{So } E_{\text{TOT}} = E_1 + E_2 = \frac{\hbar^2}{8mL^2} (1+4)$$

$$E_{\text{TOT}} = 260 \text{ MeV}$$