1.8 An electron can "tunnel" between potential wells that form a chain, so its state vector can be written

$$|\psi\rangle = \sum_{-\infty}^{\infty} a_n|n\rangle, \tag{1.2a}$$

where $|n\rangle$ is the state of being in the nth well, where n increases from left to right. Let

$$a_n = \frac{1}{\sqrt{2}} \left(\frac{-\text{i}}{3}\right)^{|n|/2} \text{e}^{\text{i}n\pi}. \tag{1.2b}$$

a. What is the probability of finding the electron in the nth well?

b. What is the probability of finding the electron in well 0 or anywhere to the right of it?