

LATEX PRACTICE

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Quiz Practice

Calculate probabilities and expectation values.

$$\psi_n(x) = \sqrt{\frac{2}{L}} \sin\left(\frac{n\pi x}{L}\right)$$

Find probability $n = 2$, from $x = \frac{L}{2}$ to $x = \frac{L}{4}$

$$\int |\psi(x)|^2 dx$$

$$\int \left| \sqrt{\frac{2}{L}} \sin\left(\frac{n\pi x}{L}\right) \right|^2 dx$$

$$\frac{2}{L} \int \sin^2\left(\frac{n\pi x}{L}\right) dx ; u = \frac{n\pi x}{L} ; dx = \frac{du}{\frac{n\pi}{L}} = \frac{L du}{n\pi}$$