

I made a stupid error in class Wednesday (5/16) and Friday (5/18): I said that

$$\int_0^L \sin(m\pi x/L) \sin(n\pi x/L) dx = \frac{1}{2}(\delta_{mn}) = \begin{cases} 0 & m \neq n \\ \frac{1}{2} & m = n \end{cases} .$$

This is incorrect. The correct expression is:

$$\int_0^L \sin(m\pi x/L) \sin(n\pi x/L) dx = \frac{L}{2}(\delta_{mn} - \delta_{m,-n}) = \begin{cases} 0 & m \neq n \\ \frac{L}{2} & m = n \\ -\frac{L}{2} & m = -n \end{cases} .$$

As a result, the coefficients I have been finding are off by a factor of $1/L$. Sorry!