

**a.** Using formulas in the notes, evaluate the definite integral

$$\int_a^b dt \delta(t-t_0) .$$

**b.** Show that you can also obtain your answer to part **a** by using the following expression for the *indefinite* integral:

$$\int dt \delta(t) = \theta(t) .$$

**c.** Evaluate the Fourier transform of  $\delta(t-t_0)$ .

**d.** Evaluate the Fourier transform of  $\delta(t)$ .