EXERCISE C.1: Show that since $x(t) = x(t+T_0)$, the range of integration for (C.1) can be *any convenient interval* of length T_0. For example, break the integral into two integrals over $[-T_0/2, 0]$ and $[0, T_0/2]$ and then use a change of dummy variable of integration on the one over $[-T_0/2, 0]$ prior to combining back into the form (C.1) to show that

$$a_k = \frac{1}{T_0} \int_{-T_0/2}^{T_0/2} x(t) e^{-j\omega_0 kt}\, dt \tag{C.9}$$

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