Example C-1: The *square wave* is the special case of the pulse wave, where $\tau = T_0/2$. In this case, the formula for the Fourier coefficients a_k becomes relatively simple: all the even-indexed coefficients (except for a_0) become zero.

$$a_k = \frac{\sin(\pi k (T_0/2)/T_0)}{\pi k} = \frac{\sin(\pi k/2)}{\pi k}$$

$$\Rightarrow \quad a_0 = \frac{1}{2}, \; a_{\pm 1} = \frac{1}{\pi}, \; a_{\pm 2} = 0, \; a_{\pm 3} = \frac{-1}{3\pi}, \; a_{\pm 4} = 0, \; a_{\pm 5} = \frac{1}{5\pi}, \ldots$$