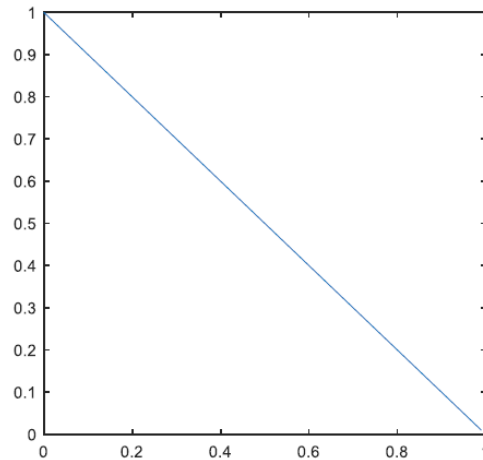# Exercise 5
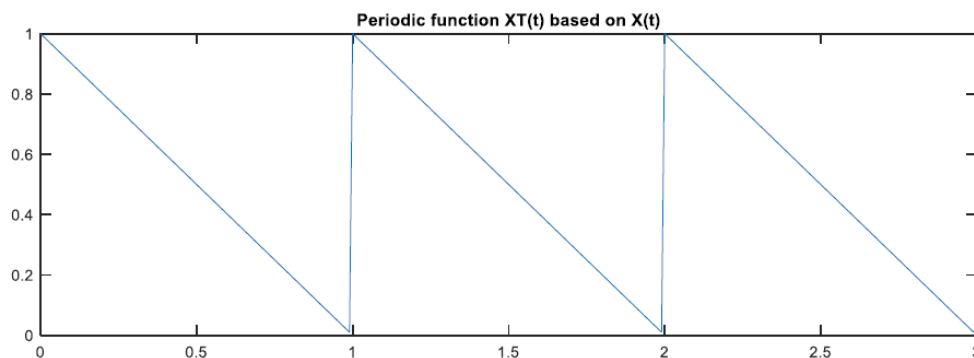
Fourier Series

Part 1:

Write a MATLAB function to generate the signal X(t) shown below (note: T = 1 second).

Use MATLAB's *repmat* function to generate the signal XT(t) shown below.

Write a MATLAB function to obtain the Fourier series coefficients a_o, a_n, and b_n.

Additional criteria for the function:

- Two input parameters dt (step size) and N (number of Fourier series coefficients)
- Five outputs: XT_r, XT(t), a_o, a_n, and b_n

Part 2:

Write a MATLAB test bench script to plot the regenerated signal, XT_r.