Tutorial 8 Fourier series of 2L-periodic functions
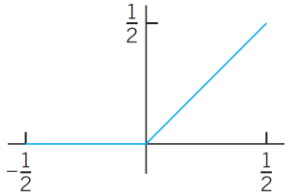
Is the following function even or odd or neither? Find the expression of $f(x)$ at first and then find their Fourier series. Show the details of your work.
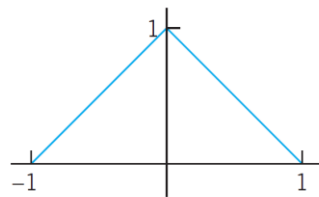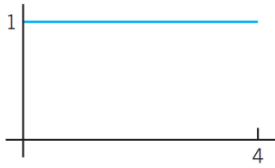
1.

2.

3.

Half-range expansions: find (a) the Fourier cosine series, (b) the Fourier sine series. Sketch $f(x)$ and its two periodic extensions. Show the details.

4.

5.