Worksheet 2

Download as a [PDF file (https://cpjobling.github.io/eg-247-textbook/worksheets/worksheet2.pdf)](https://cpjobling.github.io/eg-247-textbook/worksheets/worksheet2.pdf).

Consider a signal

$$x = f(t) = \begin{cases} 0 & : \ t < -1 \\ t + 1 & : \ -1 \leq t \leq 1 \\ 0 & : \ t > 1 \end{cases}$$
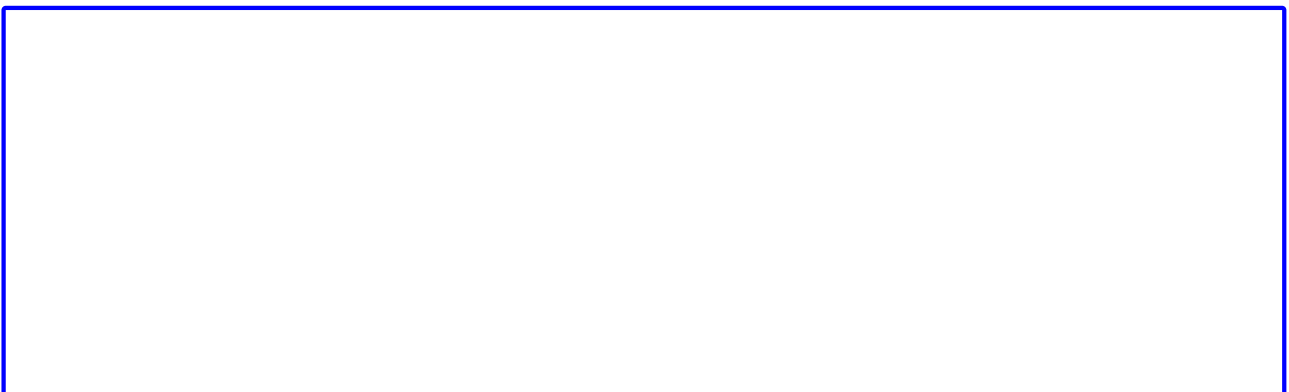
Sketch this signal

Sketch the effect on this signal of applying the following basic signal operations

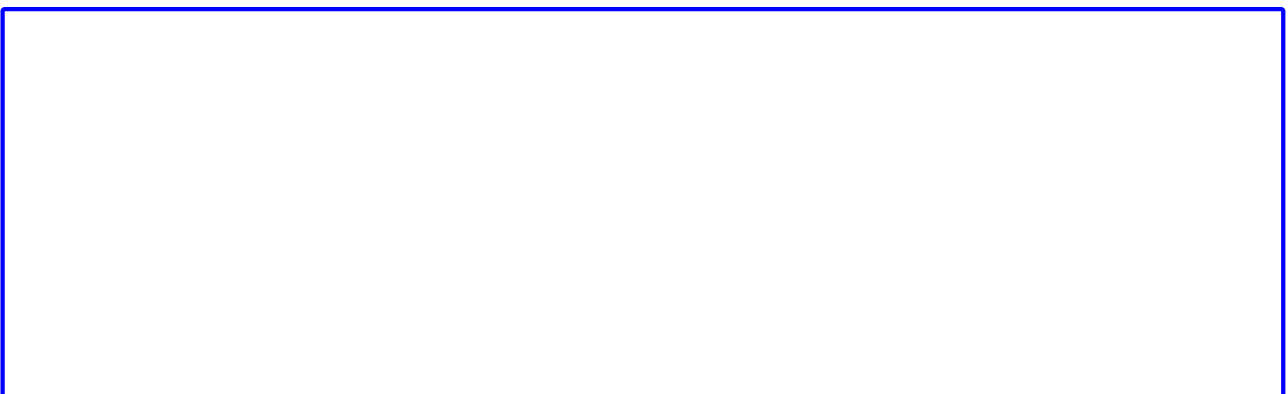## Amplitude scaling

$$2f(t)$$

$$0.5f(t)$$

Time scaling

$$f(2t)$$

$$f(0.5t)$$

Mirroring

$$-f(t)$$

$$f(-t)$$

$$-f(-t)$$

Time shifting - delay and advance

$$f(t - 1)$$

$$f(t + 1)$$

Exercise

We leave the solution of $-2f(-t + 2)$ as an exercise for the reader but note that it involves *amplitude scaling*, *amplitude mirroring*, *time mirroring*, and a *time shift*. Each operation can be performed in sequence in any order.