Worksheet 2

Contents

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Consider a signal

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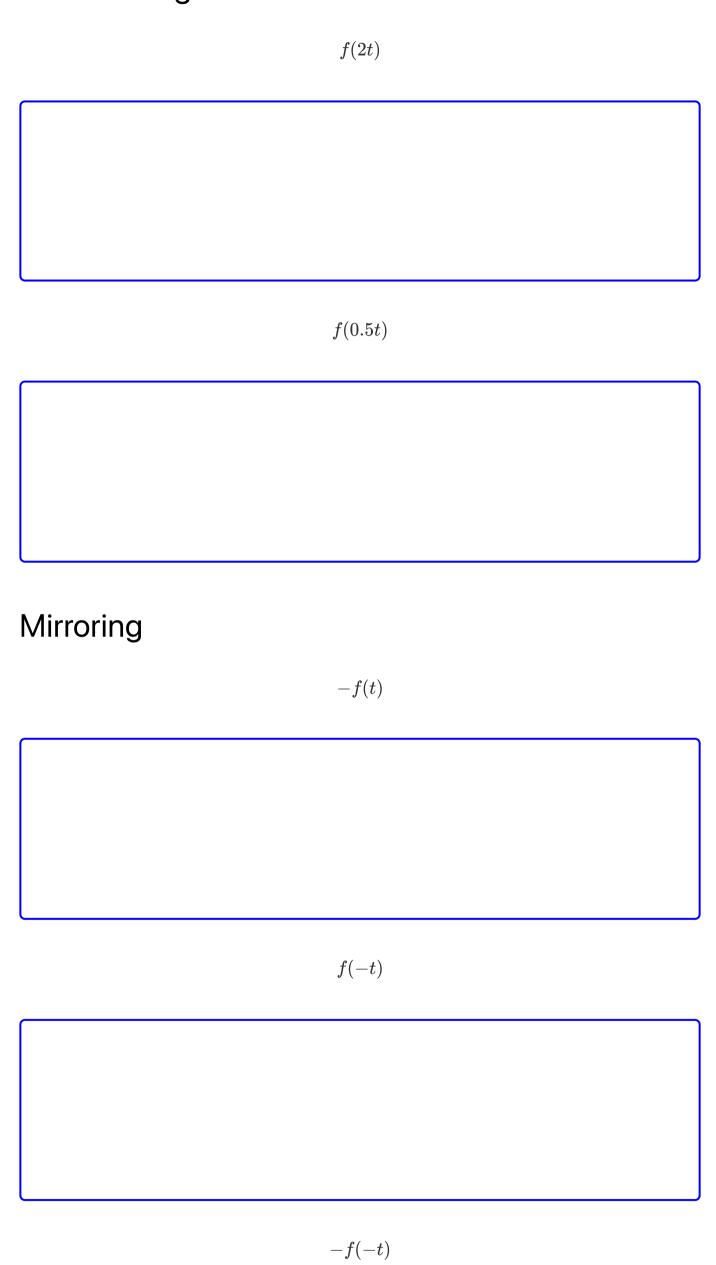
Sketch this signal

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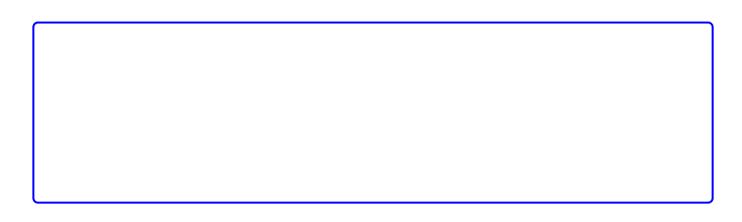
Amplitude scaling

$$2f(t)$$

$$0.5f(t)$$

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.

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