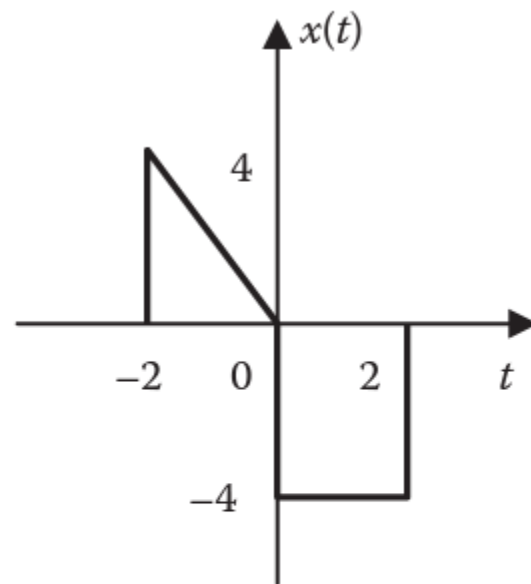


**FIGURE 1.58** For Problem 1.24.

**1.24** If  $x(t)$  is the signal shown in Figure 1.58, sketch (a)  $x(t - 2)$ , (b)  $x(3t)$ , and (c)  $y(t) = 1 + 2x(t)$ .



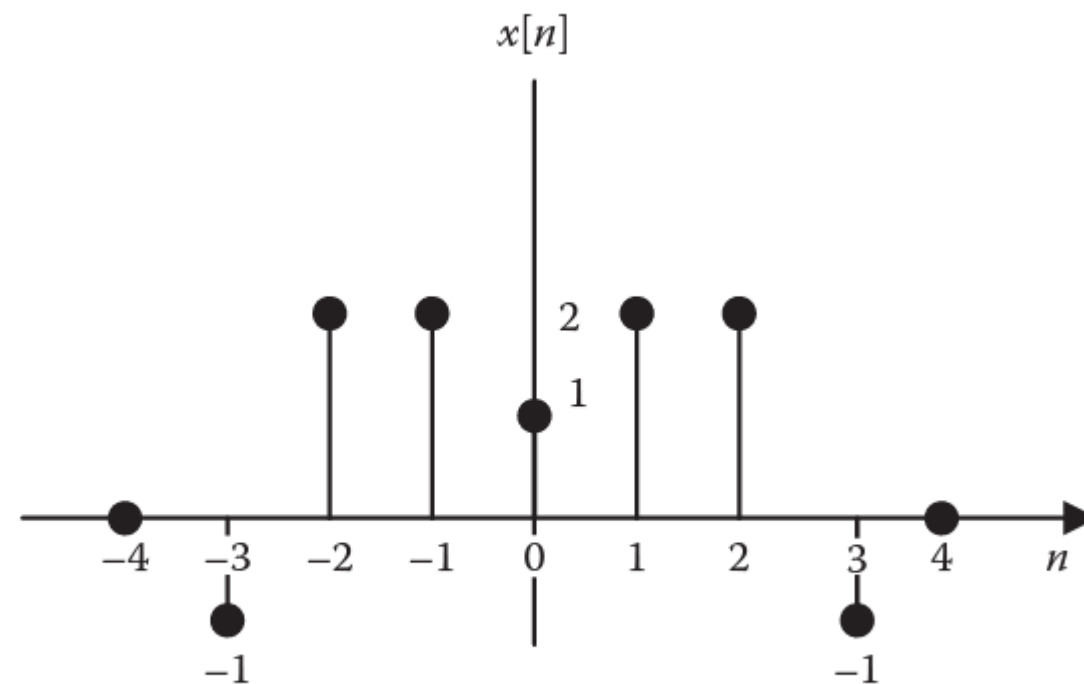
**FIGURE 1.59** For Problem 1.29.

**1.29** Given  $x(t)$  in Figure 1.59, sketch

(a)  $y(t) = -x(t-1)$

(b)  $z(t) = 4x(t/2)$

(c)  $h(t) = x(2-t)$



**FIGURE 1.62** For Problem 1.32.

**1.32** Consider the discrete-time signal in Figure 1.62. Sketch the following signals:

- (a)  $x[n]u[2-n]$
- (b)  $x[n][u[n+1]-u[n]]$
- (c)  $x[n]\delta[n-2]$

**1.36** Determine which of the following systems is linear:

(a)  $y(t) = \exp[x(t)]$

(b)  $y(t) = \cos x(t)$

(c)  $y(t) = t^2 x(t)$

**1.39** Determine whether the following systems are causal or noncausal, memoryless or with memory.

(a)  $y(t) = e^{x(t)} \sin t$

(b)  $y(t) = \int_0^t x(\tau) \tau d\tau$

**1.49** Use MATLAB to plot these discrete-time signals:

(a)  $x[n] = 10(0.7)^n, n \geq 0$

(b)  $y[n] = 10(1.2)^n, n \geq 0$

**1.50** Use MATLAB to plot the following signals over  $-2 \leq t \leq 4$  s:

(a)  $x(t) = 2 r(t)$

(b)  $y(t) = 5e^{-2t} u(t)$

(c)  $z(t) = 4 \cos 4t + 2 \sin(2t - \pi/4)$