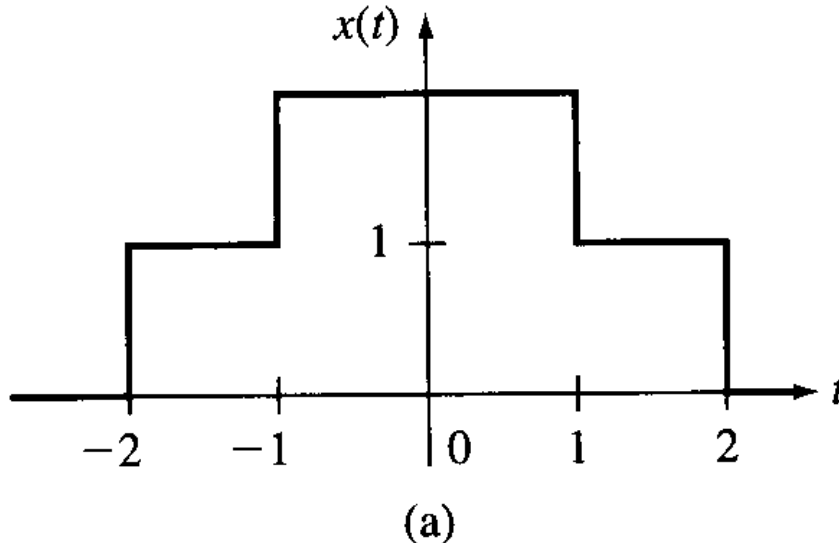


1.1. Consider the continuous-time signals displayed in Figure P1.1.

- (i) Show that each of these signals is equal to a sum of rectangular pulses $p_\tau(t)$ and/or triangular pulses $(1 - 2|t|/\tau)p_\tau(t)$.
- (ii) Use MATLAB to plot the signals in Figure P1.1.



(i) There are a couple ways to represent this function-

$$\underline{x(t) = p_4(t) + p_2(t)} \quad \text{or} \quad \underline{x(t) = p_1(t+1.5) + 2p_2(t) + p_1(t-1.5)}$$

(ii)

```
% Problem 1.1a (p1_01a.m)
% Generate plot of x(t)=p4(t)+p2(t)
%
% For this simple function it's easiest to just manually
% define the prominent points of x(t)
t = [-2.2,-2,-2,-1,-1,1,1,2,2,2.2];
x = [0,0,1,1,2,2,1,1,0,0];
z = 0*t; %define horizontal axis
plot(t,z,'k-',t,x,'r-', 'linewidth',2)
axis([-2.2 2.2 -0.5 2.5]);
ylabel('x(t)', 'fontsize',16, 'fontname', 'times')
xlabel('Time', 'fontsize',16, 'fontname', 'times')
title('Problem 1.1a', 'fontsize',18, 'fontname', 'times')
set(findobj('type', 'axes'), 'fontname', 'times', 'fontsize',14)
set(findobj('type', 'line'), 'linewidth',1.5)
set(findobj('type', 'line'), 'markersize',18)
set(findobj('type', 'axes'), 'linewidth',2)
```

Problem 1.1a

