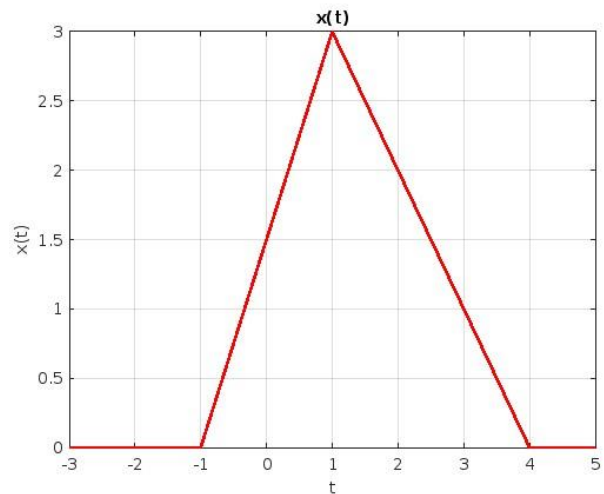


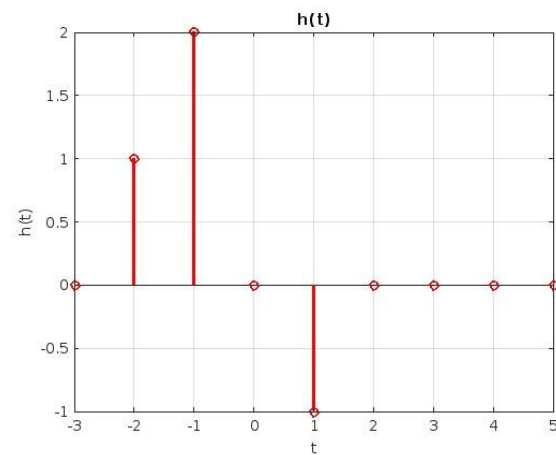
(a)

```
1 t = -3 : 1 : 5;
2
3 x = zeros(size(t));
4 u_n1 = zeros(size(t));
5 u_1 = zeros(size(t));
6 u_4 = zeros(size(t));
7
8 u_n1(t >= -1) = 1;
9 u_1(t >= 1) = 1;
10 u_4(t >= 4) = 1;
11
12 x = u_n1 .* (1.5 * (t + 1));
13 x = x + u_1 .* (-2.5 * (t - 1));
14 x = x + u_4 .* (1 * (t - 4));
15 figure('Name','x(t)','NumberTitle','on');
16 plot(t, x, "red", "LineWidth", 2);
17 title("x(t)");
18 xlabel("t");
19 ylabel("x(t)");
20 grid on;
```



(b)

```
1 t = -3 : 1 : 5;
2
3 h = zeros(size(t));
4 h(t == -2) = 1;
5 h(t == -1) = 2;
6 h(t == 1) = -1;
7 figure('Name','h(t)','NumberTitle','on');
8 stem(t, h, "red", "LineWidth", 2);
9 title("h(t)");
10 xlabel("t");
11 ylabel("h(t)");
12 grid on;
```



(c)

Note: $c = \text{conv}(h, x)$

```
1 t = -6 : 1 : 6;
2
3 x = zeros(size(t));
4 u_n1 = zeros(size(t));
5 u_1 = zeros(size(t));
6 u_4 = zeros(size(t));
7
8 u_n1(t >= -1) = 1;
9 u_1(t >= 1) = 1;
10 u_4(t >= 4) = 1;
11
12 x = u_n1 .* (1.5 * (t + 1));
13 x = x + u_1 .* (-2.5 * (t - 1));
14 x = x + u_4 .* (1 * (t - 4));
15
16 h = zeros(size(t));
17 h(t == -2) = 1;
18 h(t == -1) = 2;
19 h(t == 1) = -1;
20
21 c = zeros(size(t));
22 c = conv(h, x, "same");
23 t_conv = t(1) + (0:numel(c)-1);
24 figure('Name','c(t)','NumberTitle','on');
25 plot(t_conv, c, "red", "LineWidth", 2);
26 title("c(t)");
27 xlabel("t");
28 ylabel("c(t)");
29 grid on;
```

