

Problem 3.30 Part (c)

```

max_t = 6;
t = 0:0.01:max_t;

clf
subplot(311)

T1 = 0.5;
n1 = 0:max_t/T1;
x1 = exp(-n1*T1);
v1 = 2*exp(-2*n1*T1).*((n1*T1 >= 0) - (n1*T1 >= 2));
y1 = T1*conv(x1,v1);
plot(n1*T1,y1(1:length(n1)),'o')
hold on
grid

T2 = 0.1;
n2 = 0:max_t/T2;
x2 = exp(-n2*T2);
v2 = 2*exp(-2*n2*T2).*((n2*T2 >= 0) - (n2*T2 >= 2));
y2 = T2*conv(x2,v2);
plot(n2*T2,y2(1:length(n2)),'xg')

y = 2*exp(-t).*(1-exp(-t)).*((t >= 0) - (t >= 2)) ...
    + 2*exp(-t)*(1-exp(-2)).*(t >= 2);
plot(t,y,'r')
xlabel('t (seconds)')
ylabel('x(t)*v(t)')
legend('T = 0.5','T = 0.1','Exact')
print -dpasc2 p3_16_c.ps

```

