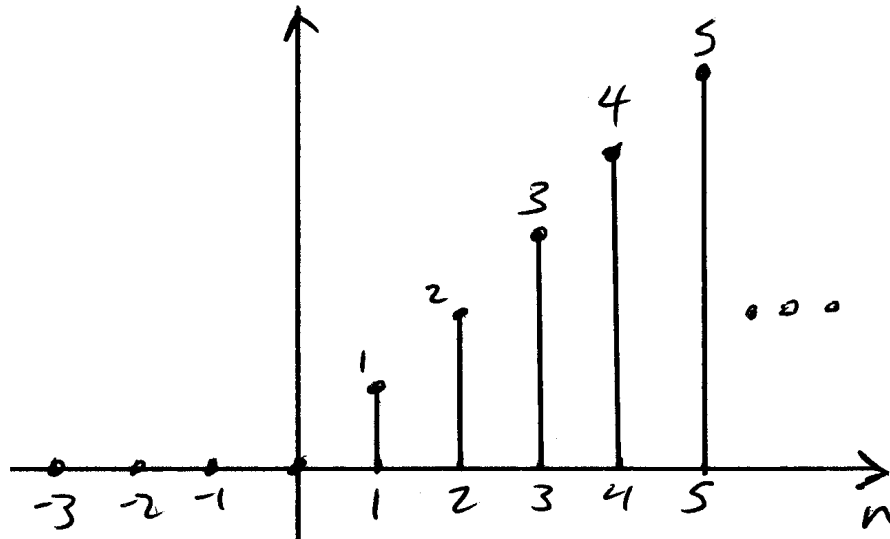


1.7 Plot the following discrete-time signals:**(b)** $x[n]$ = discrete-time unit-ramp function $r[n]$ **(j)** Verify the plots for parts (a)–(i) by using MATLAB with the stem command `stem(n,x,'filled')`. Label your axes appropriately.

- Plot for $-3 \leq n \leq 5$ with stem values labeled.

$$r[n] = \begin{cases} n & n = 0, 1, 2, \dots \\ 0 & \text{elsewhere} \end{cases}$$

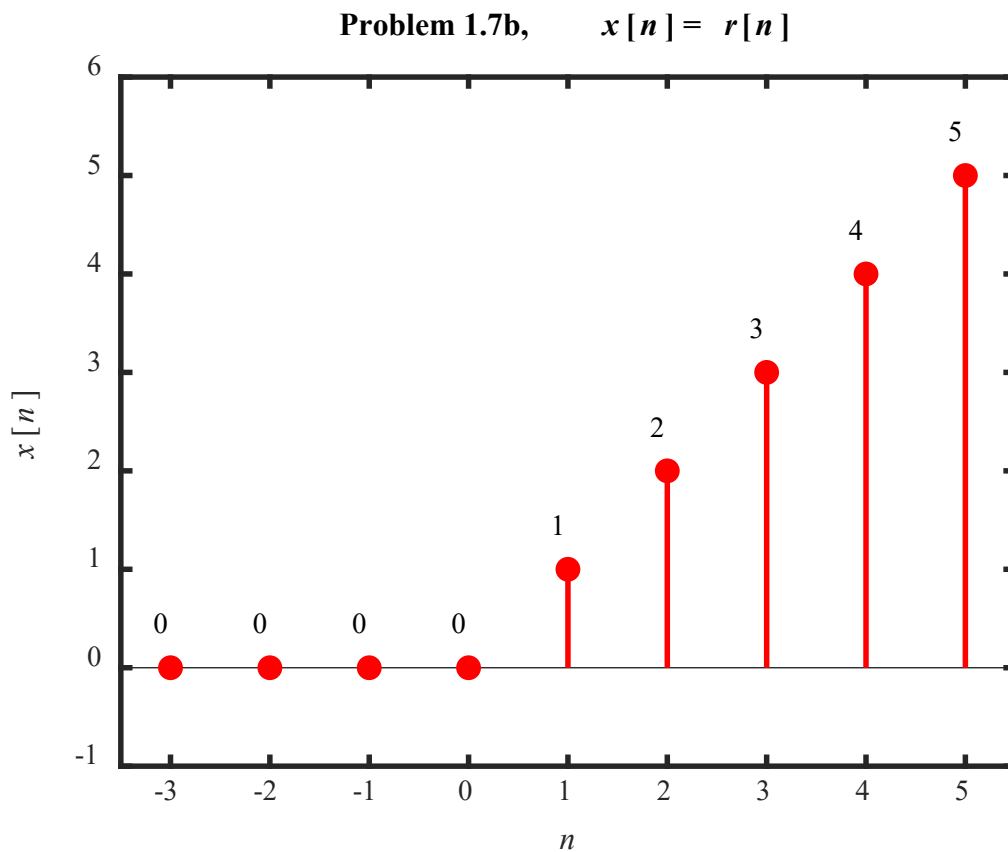
**j)**

```

% Problem 1.7b (p1_07b.m)
% Generate plot of x[n] = r[n]
%
clear; clc; close all;
n = -3:1:5;
for k = 1:length(n),
    if(n(k) < 0),
        x(k) = 0;
    else
        x(k) = n(k);
    end
end
stem(n,x,'r.','linewidth',2,'markersize',24)
axis([-3.5 5.5 -1 6]);
ylabel('\itx[{\itn}]','fontsize',16,'fontname','times')
xlabel('\it n','fontsize',16,'fontname','times')

```

```
title('Problem 1.7b, {\itx}[{\itn}] =  
{\itr}[{\itn}]', 'fontsize', 18, ...  
      'fontname', 'times')  
% Label stems  
for k=1:length(n)  
    text(n(k)-0.1, x(k)+0.1, [' ' num2str(x(k), 3)], ...  
        'HorizontalAlignment', 'center', 'VerticalAlignment', 'bottom')  
end  
set(findobj('type', 'axes'), 'fontname', 'times', 'fontsize', 14)  
set(findobj('type', 'axes'), 'linewidth', 2)  
set(findobj('type', 'text'), 'fontname', 'times', 'fontsize', 14)
```



1.7 Plot the following discrete-time signals:

(d) $x[n] = (-0.5)^n u[n]$

(j) Verify the plots for parts (a)–(i) by using MATLAB with the stem command `stem(n,x,'filled')`. Label your axes appropriately.

- Plot for $-3 \leq n \leq 5$ with stem values labeled.

$$n < 0 \quad x[n] = 0 \quad \text{since } u[n] = 0$$

$$n = 0 \quad x[n] = (-0.5)^0 (1) = 1$$

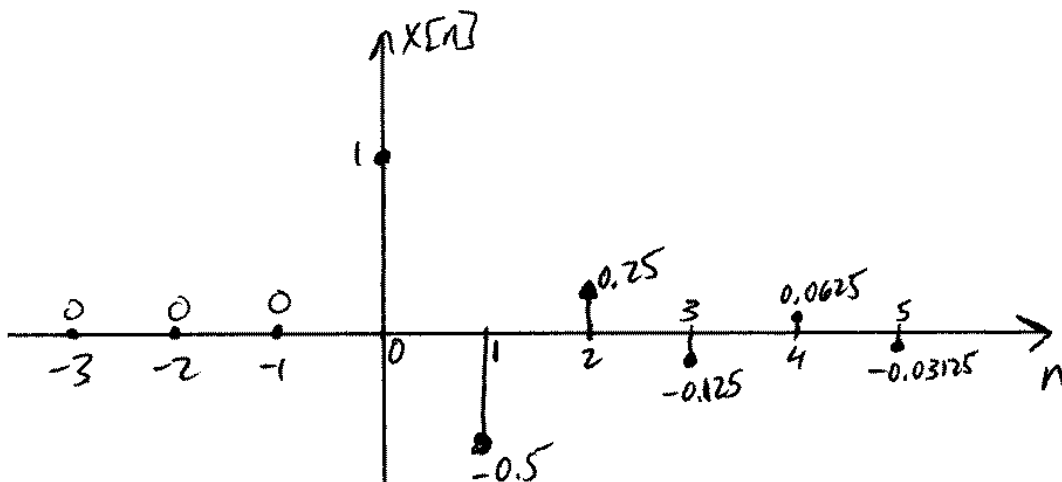
$$n = 1 \quad x[n] = (-0.5)^1 (1) = -0.5$$

$$n = 2 \quad x[n] = (-0.5)^2 (1) = 0.25$$

$$n = 3 \quad x[n] = (-0.5)^3 (1) = -0.125$$

$$n = 4 \quad x[n] = (-0.5)^4 (1) = +0.0625$$

$$n = 5 \quad x[n] = (-0.5)^5 (1) = -0.03125$$

**j)**

```

% Problem 1.7d (p1_07d.m)
% Generate plot of  $x[n] = (-0.5)^n u[n]$ 
%
clear; clc; close all;
n = -3:1:5;
for k = 1:length(n),
    if(n(k) < 0),
        x(k) = 0;
    else

```

```

        x(k) = (-0.5)^n(k);
    end
end
stem(n,x,'r.','linewidth',2,'markersize',24)
axis([-3.5 5.8 -0.75 1.25]);
ylabel('\itx}[\{itn}]','fontsize',16,'fontname','times')
xlabel('\it n','fontsize',16,'fontname','times')
title('Problem 1.7d, {\itx}[\{itn}] = (-0.5)^{\itn}{\itu}[\{itn}]',...
      'fontsize',18,'fontname','times')
% Label stems
for k=1:length(n)
    if(x(k)>0)
        text(n(k)-0.1,x(k)+0.04,[' ' num2str(x(k),3)],...
            'HorizontalAlignment','center','VerticalAlignment','bottom')
    else
        text(n(k)-0.1,x(k)-0.04,[' ' num2str(x(k),4)],...
            'HorizontalAlignment','center','VerticalAlignment','top')
    end
end
end
set(findobj('type','axes'),'fontname','times','fontsize',14)
set(findobj('type','axes'),'linewidth',2)
set(findobj('type','text'),'fontname','times','fontsize',14)

```

