

```
%In class Example--- Programmed by HY Shadow Huang
```

```
format long
```

```
L=12;
```

```
a=4;
```

```
b=8;
```

```
F1=2000;
```

```
F2=5000;
```

```
R1=3000;
```

```
R2=4000;
```

```
C1=0;
```

```
C2=0;
```

```
C3=-5.333*10^4;
```

```
C4=0;
```

```
EI=200000;
```

```
INC=L/1000;
```

```
for i=1:1001
```

```
  x = (i-1)*INC;
```

```
  if x<a
```

```
    S=0;
```

```
  else
```

```
    S=1;
```

```
  end;
```

```
  if x<b
```

```
    P=0;
```

```
  else
```

```
    P=1;
```

```
  end;
```

```
  if x<L
```

```
    Q=0;
```

```
  else
```

```
    Q=1;
```

```
  end;
```

```
  w(i)=-R1*(x-0)^(-1) + F1*S*(x-a)^(-1) + F2*P*(x-b)^(-1)- R2*Q*(x-L)^(-1);
```

```
  V(i)=R1*(x-0)^0 - F1*S*(x-a)^0 - F2*P*(x-b)^0 + R2*Q*(x-L)^0 + C1;
```

```
  M(i)=R1*(x-0)^1 - F1*S*(x-a)^1 - F2*P*(x-b)^1 + R2*Q*(x-L)^1 + C1*x + C2;
```

```
  Theta(i)=1/(EI)*(R1/2*(x-0)^2 - F1/2*S*(x-a)^2 - F2/2*P*(x-b)^2 + R2/2*Q*(x-L)^2 + C1/2*x^2 + C2*x + C3)↵
```

```
  ;
```

```
  y(i)=1/(EI)*(R1/(2*3)*(x-0)^3 - F1/(2*3)*S*(x-a)^3 - F2/(2*3)*P*(x-b)^3 + R2/(2*3)*Q*(x-L)^3 + C1/(2*3)*↵  
x^3 + C2/2*x ^2 + C3*x +C4);
```

```
end;
```

```
x=0:INC:L;
```

```
subplot(2,2,1)
```

```
plot(x,V);
```

```
xlabel('x')
```

```
ylabel('Shear Force V(x+1)')
```

```
title('Shear Force V')
```

```
axis([0 12 -Inf Inf])
```

```
subplot(2,2,2)
```

```
plot(x,M);
```

```
xlabel('x')
```

```
ylabel('Moment M(x+1)')
```

```
title('Moment')
```

```
axis([0 12 -Inf Inf])
```

```
subplot(2,2,3)
```

```
plot(x,Theta);
```

```
xlabel('x')
```

```
ylabel('Slope Theta(x+1)')
```

```
title('Slope')
axis([0 12 -Inf Inf])
subplot(2,2,4)
plot(x,y);
xlabel('x')
ylabel('Deflection y(x+1)')
title('Deflection')
axis([0 12 -Inf Inf])
```