

```
1 function [dmdt] = Francis(t,m)
2
3 dmdt(1) = -((15/500)*m(1)) + ((5/1000)*m(2)) + 1;
4 dmdt(2) = ((15/500)*m(1)) - ((18/1000)*m(2)) + ((3/400)*m(3));
5 dmdt(3) = ((13/1000)*m(2)) - ((13/400)*m(3));
6
7 dmdt = dmdt';
8 end
```

```
1 commandwindow
2 clear
3 clc
4 close all
5 width= [0:1:1200];
6 initial=[0 0 0];
7 [t,Q]= ode45(@Francis,width,initial);
8 figure(1)
9 subplot(3,1,1)
10 plot(t,Q(:,1), 'go-')
11 xlabel('Time (min)')
12 ylabel('Volume(litres)')
13 legend('Tank 1', 'Location', 'South')
14 grid on
15 axis tight
16 title('Figure 1:Dynamic Responses of the Tanks')
17 subplot(3,1,2)
18 plot(t,Q(:,2), 'b*--')
19 xlabel('Time (min)')
20 ylabel('Volume(litres)')
21 legend('Tank 2', 'Location', 'South')
22 grid on
23 axis tight
24 subplot(3,1,3)
25 plot(t,Q(:,3), 'r+--')
26 xlabel('Time(min)')
27 ylabel('Volume (litres)')
28 legend('Tank 3', 'Location', 'South' )
29 grid on
30 axis tight
```

Figure 1: Dynamic Responses of the Tanks

