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CHEMICAL ENGINEERING

17/ENG01/013

ENG 382: ENGINEERING MATHEMATICS IV ASSIGNMENT 4

MATLAB CODE

FUNCTION COMMAND

```
function dqdt=fc(t,q)
dqdt(1)=(-0.03*q(1))+(0.005*q(2))+1;
dqdt(2)=(0.03*q(1))-(0.018*q(2))+0.0075*q(3);
dqdt(3)=(0.013*q(2))-(0.0325*q(3));
dqdt=dqdt';
end
```

SIMULATION

```
commandwindow
clearvars
clc
close all
[t,q]=ode45('fc',[0:45:1200],[0 0 0]);
```

```
figure(1);
subplot(3,1,1)
plot(t,q(:,1),'o-g')
xlabel('Time(min)')
ylabel('Volume(Litre)')
legend('Tank 1')
grid on
grid minor
axis tight
```

```
subplot(3,1,2)
plot(t,q(:,2),'*-b')
xlabel('Time(min)')
ylabel('Volume(Litre)')
legend('Tank 2')
grid on
grid minor
axis tight
```

```
subplot(3,1,3)
plot(t,q(:,1),'+-r')
xlabel('Time(min)')
ylabel('Volume(Litre)')
legend('Tank 2')
grid on
grid minor
axis tight
```

OUTPUT

