

-----<(M File)>-----

```
X0=[0;0];%initial conditions are zero
```

```
TR=[0 10];%time response RANGE
```

```
%t=0:0.1:50;
```

```
[t,x]=ode45(@func1,TR,X0);
```

```
Displacement=x(:,1)
```

```
Velocity=x(:,2)
```

```
plot(t, Displacement)
```

```
hold on
```

```
plot(t,Velocity)
```

```
acceleration = gradient(Velocity,t);
```

```
hold on
```

```
plot(t,[0;acceleration])
```

```
ylabel('x,v,a')
```

```
xlabel('time')
```

```
legend("displacement","velocity","acceleration");
```

```
%state variables give the following function
```

```
function dx = func1(t,x)
```

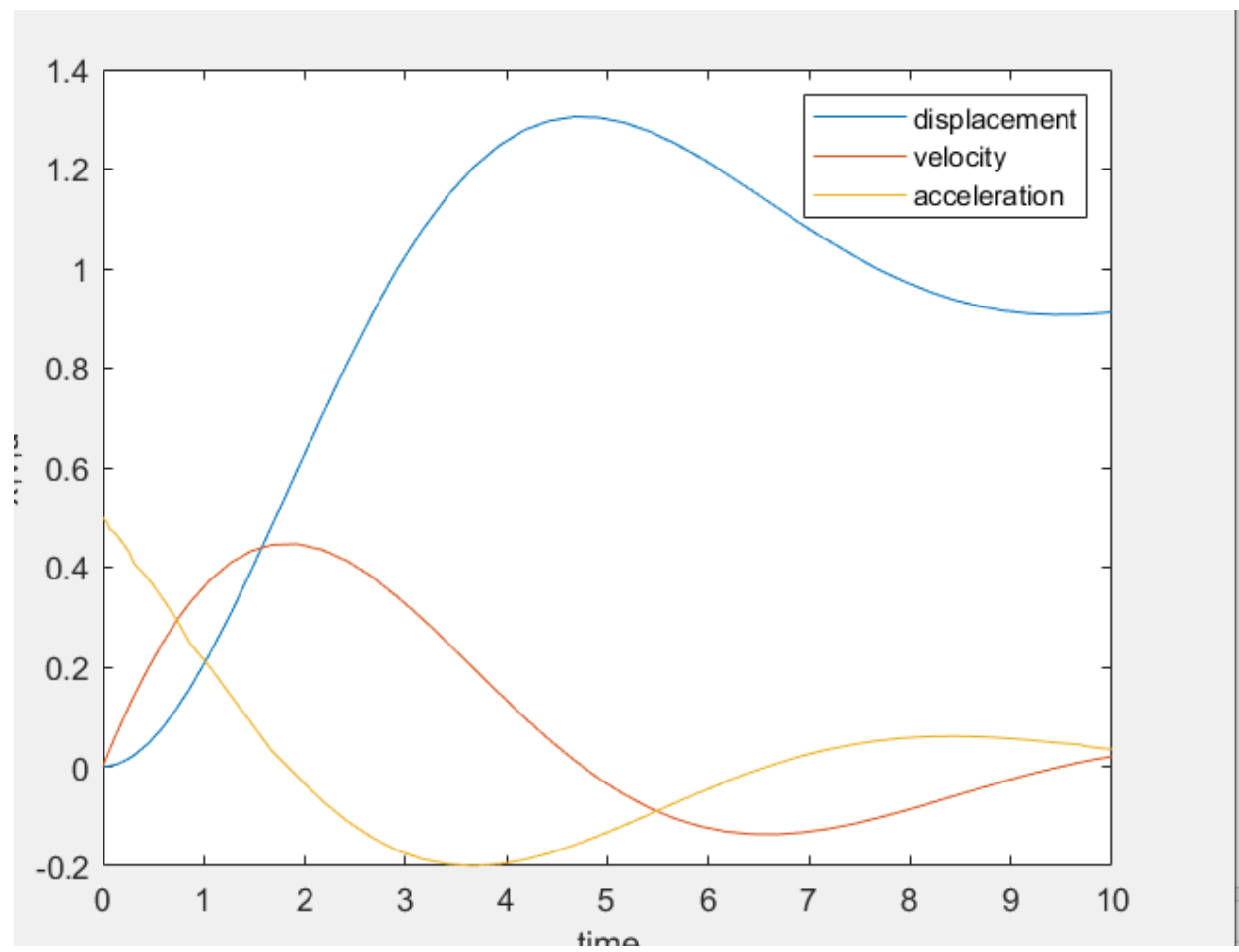
```
    M=10;B=5;K=5;F=5;
```

```
    dx(1)=x(2)%for x dot
```

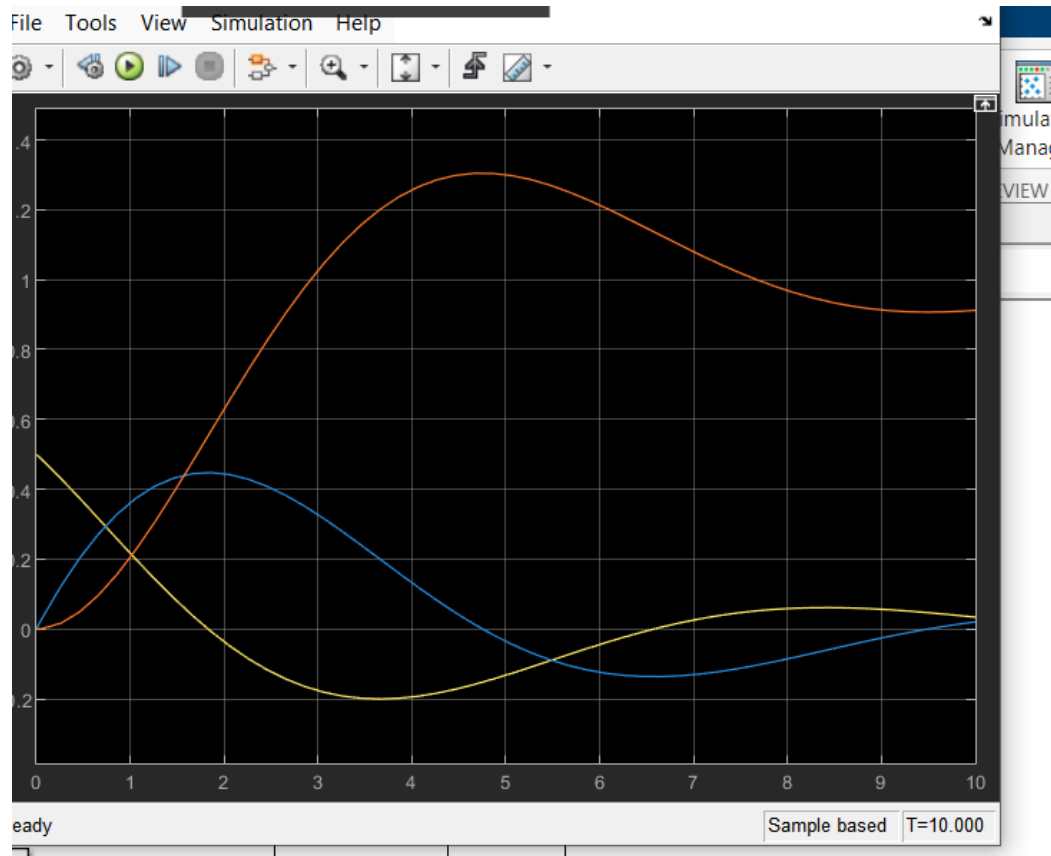
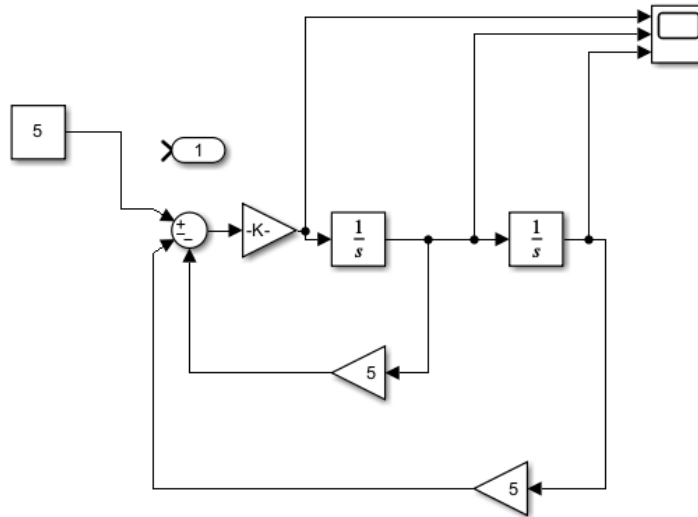
```
    dx(2)=(F-B*x(2)-K*x(1))/M %for x dot dot
```

```
    dx = dx';
```

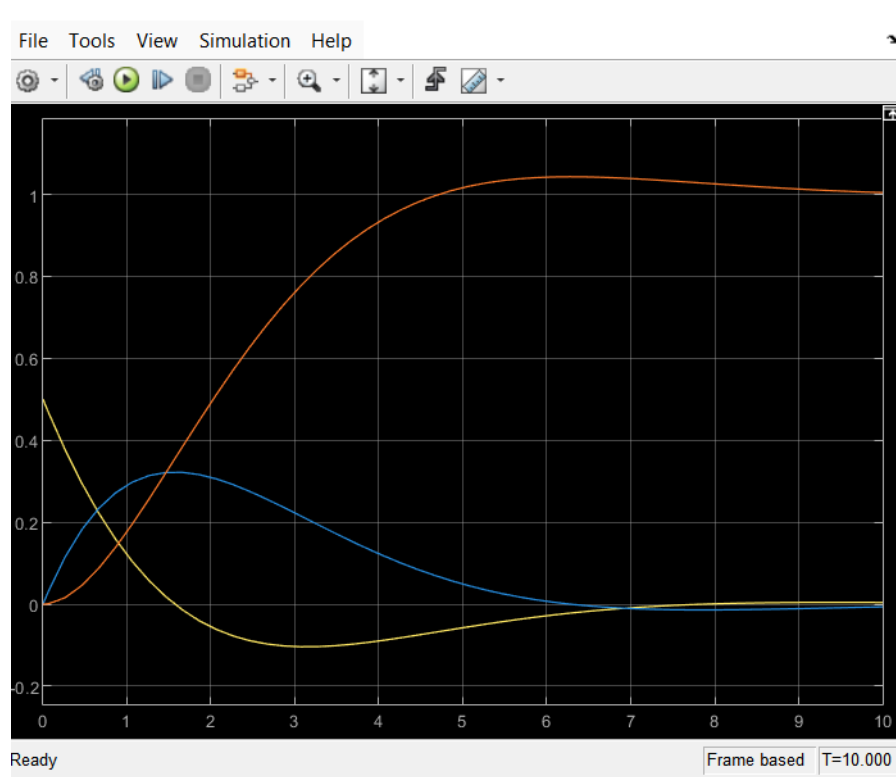
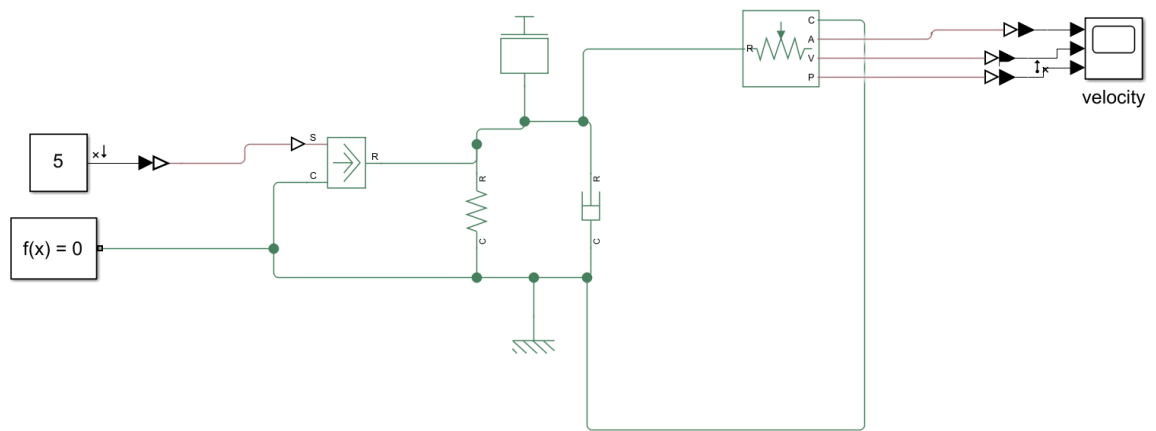
```
end
```



-----<(Simulink)>-----



-----<(SIMSCAPE)>-----



Linearization result details for linsys1:

Select linearization result:

Display linearization result as:

Transfer Function

From input "u1" to output "y1":

0.1

$s^2 + s + 0.5$

Name: Linearization at model initial condition

Continuous-time transfer function.

Model Properties

Input Channel Names: