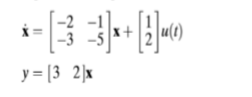
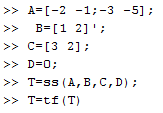
#.Find the transfer function from the following state equations

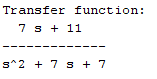
*1.*

**

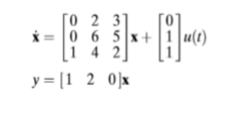
*Matlab Code:*



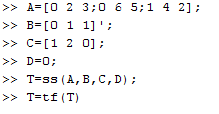
*Output:*



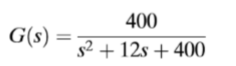
*2.*

**

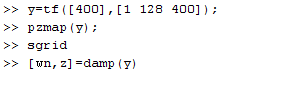
*Matlab Code:*

**

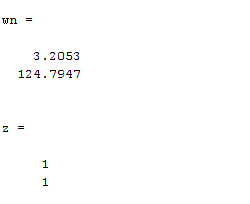
*1.*

**

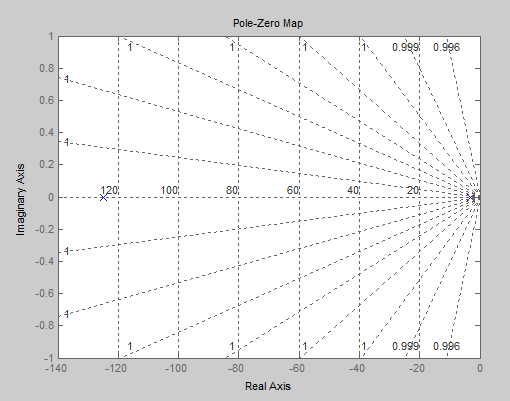
*Matlab Code:*

**

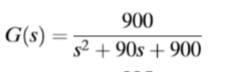
*Output:*

**

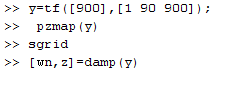
*Figure:*

**

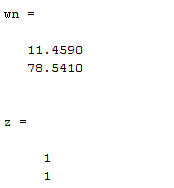
*2.*

**

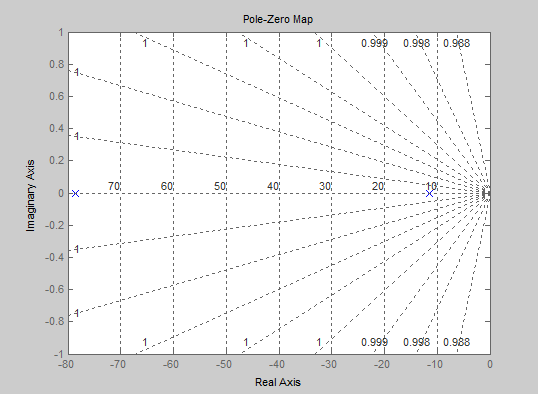
*Matlab Code:*

**

*Output:*

**

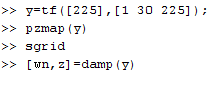
*Figure:*

**

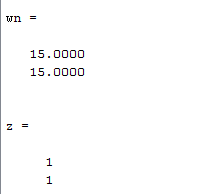
*3.*

**

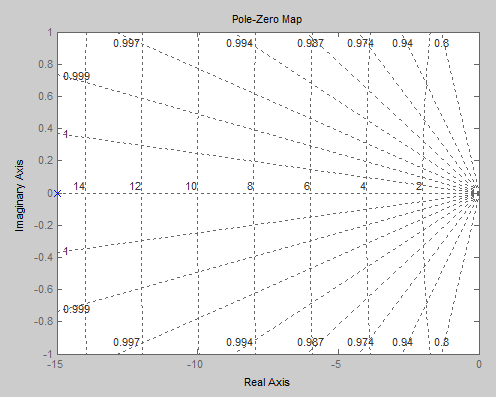
*Matlab Code:*

**

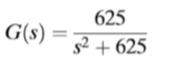
*Output:*

**

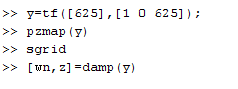
*Figure:*

**

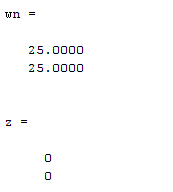
*4.*

**

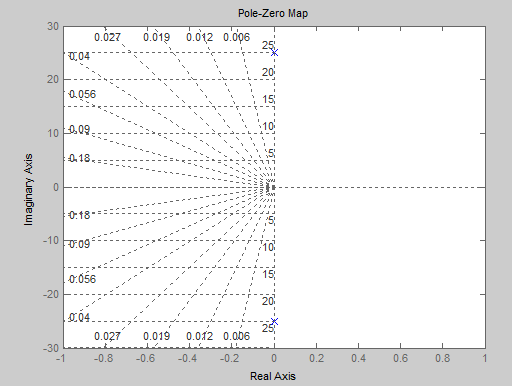
*Matlab Code:*

**

*Output:*

**

*Figure:*

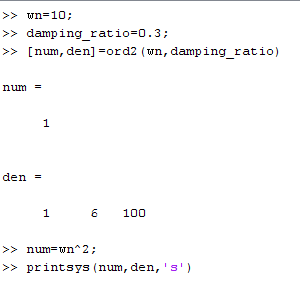
**

#.Print a system when natural frequency (ωn) and damping ratio (ξ) are given

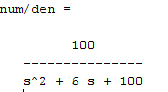
*1.*

**

*Matlab Code:*

**

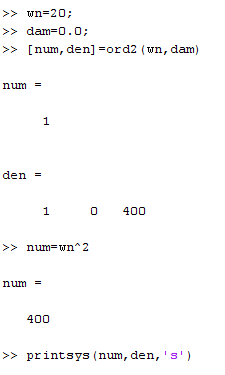
*Output:*

**

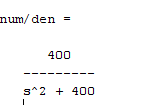
*2.*

**

*Matlab Code:*

**

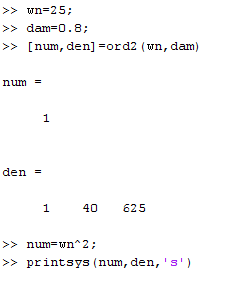
*Output:*

**

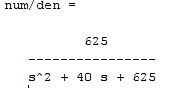
*3.*

**

*Matlab Code:*

**

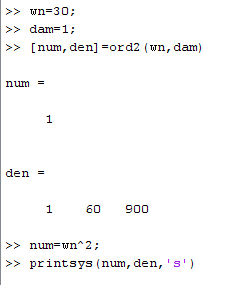
*Output:*

**

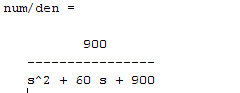
*4.*

**

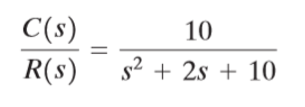
*Matlab Code:*

**

*Output:*

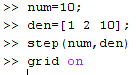
**

#.Using MATLAB, obtain the unit-step response, unit-ramp response, and unit-impulse response of the following system

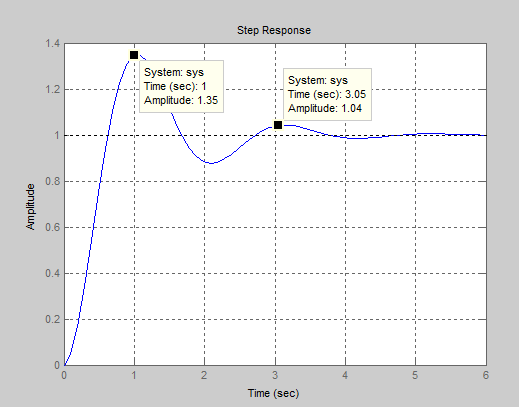
**

*Unit Step Response*

*Matlab Code:*

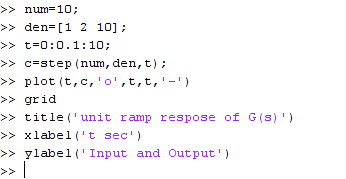
**

*Output:*

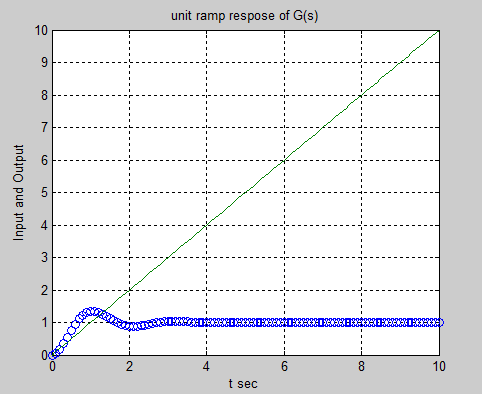
**

*Unit Ramp Respoonse*

*Matlab Code:*

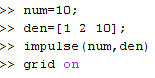
**

*Output:*

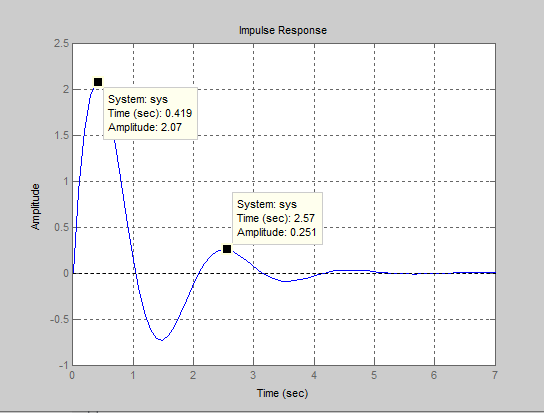
**

*Unit Impulse Response*

*Matlab Code:*

**

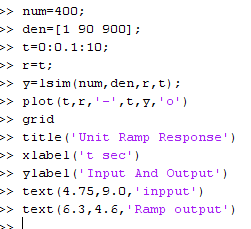
*Output:*

**

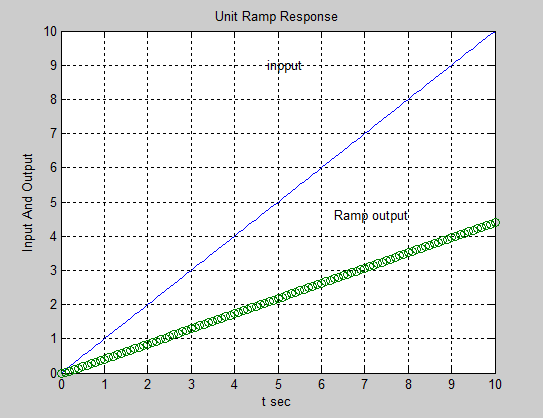
#.Obtain the unit-ramp response of three transfer functions using “lsim” command

*1.*

*Matlab Code:*

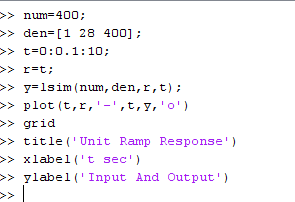
**

*Output:*

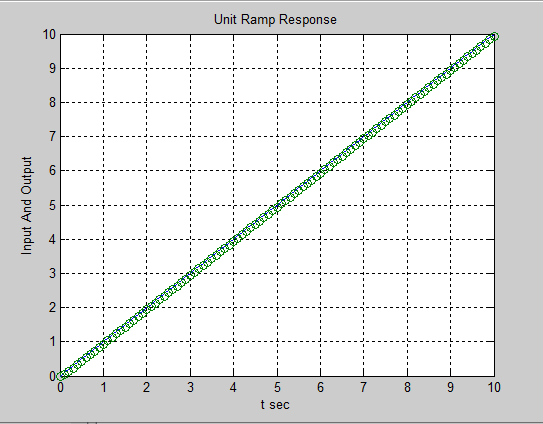
**

*2.*

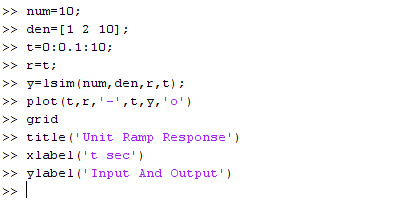
*Matlab Code:*

*. *

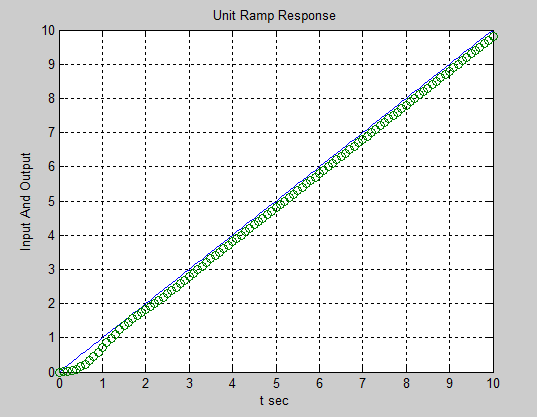
*Output:*

**

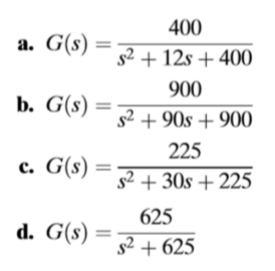
*3.*

*Matlab Code:*

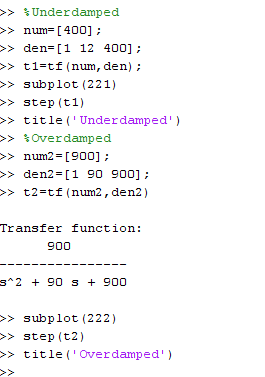
*Output:*

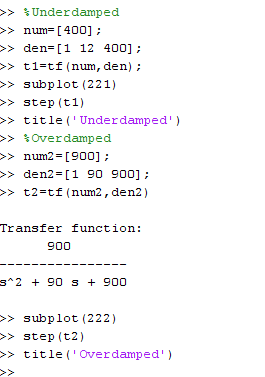
**

#.Include step responses of overdamped, underdamped, critically damped and undamped system in a single figure using subplot command

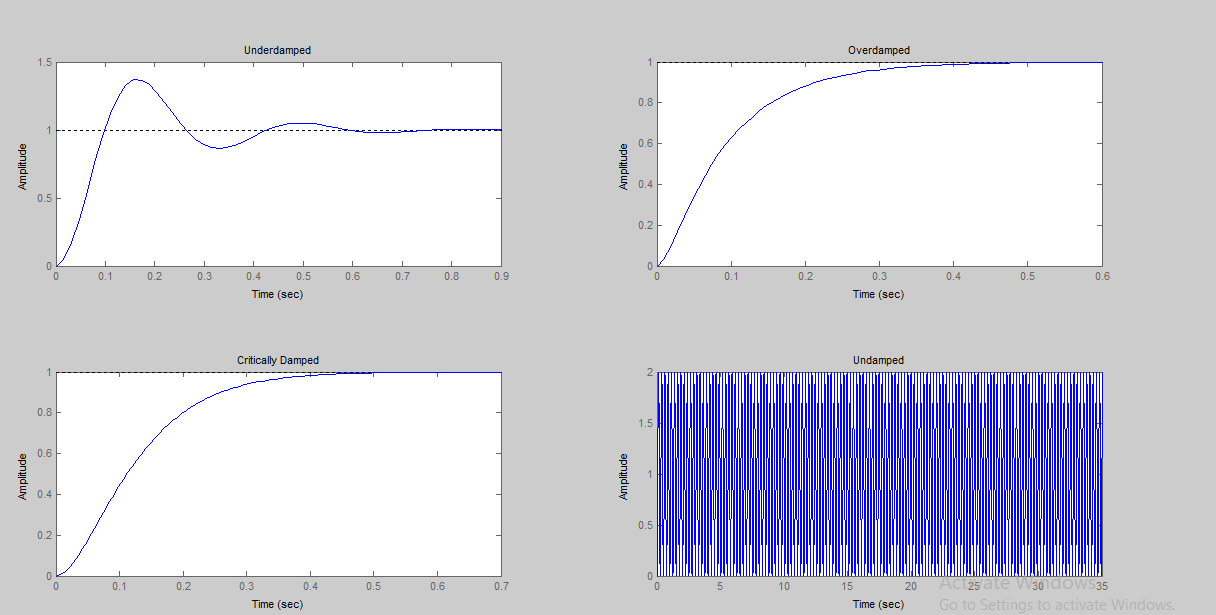
**

*Matlab Code:*

**

**

*Output:*

**