

```

%%Open loop step response
num=[1];
den=[1 10 20];
plant=tf(num,den);
figure(1);
step(plant)
%%Proportional control
Kp=300;
contr=Kp;
sys=feedback(contr*plant,1);
figure(2);
step(sys)
%%Proportional Derivative control
Kp=300;
Kd=10;
contr=tf([Kd Kp],1);
sys=feedback(contr*plant,1);
figure(3);
step(sys)
%%Proportional Integral control
Kp=30;
Ki=70;
contr=tf([Kp Ki],[1 0]);
sys=feedback(contr*plant,1);
figure(4);
step(sys)

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```
%%Proportional Integral Derivative control
Kp=350;
Kd=50;
Ki=300
contr=tf([Kd Kp Ki],[1,0]);
sys=feedback(contr*plant,1);
figure(5);
step(sys)
```





