

Scilab Manual for
Principles of Control System
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January 8, 2026

¹Funded by a grant from the National Mission on Education through ICT,
<http://spoken-tutorial.org/NMEICT-Intro>. This Scilab Manual and Scilab codes
written in it can be downloaded from the "Migrated Labs" section at the website
<http://scilab.in>

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Experiment: 1

To analyse pole zero plot of a system

Scilab code Solution 1.1 pole zero plot for a given system

```
1 clc;  
2 close;  
3 //Scilab 5.5.0;64 bit (windows 7)  
4 //laplace//  
5 //pole zero plot for g(s)=(s^2+3s+2)/(s^2+7s+12)  
6 s=%s;  
7 p=poly([2 3 1], 's', "coeff")  
8 q=poly([12 7 1], 's', "coeff")  
9 V=syslin('c', p, q)  
10 plzr(V)  
11 syms s t ;  
12 v =ilaplace( '(2+(3*s)+s^2) / (s^2+(7*s)+12) ', s, t)  
13 disp(v, "V(t) = ')
```

Experiment: 2

To find the characteristics equation and poles of a system

Scilab code Solution 2.1 characteristic equation and poles of system

```
1 clc;  
2 close;  
3 //Scilab 5.5.0;64 bit(windows 7)  
4 //characteristic equation and poles of system  
5 s=%s;  
6 G=syslin('c',(5*(s+2))/((s+3)*(s+4)));  
7 disp(G,"G(s)=")  
8 x=denom(G);  
9 disp(x," Characteristics Equation=")  
10 y=roots(x);  
11 disp(y," Poles of a system=")
```

Experiment: 3

To find the gain equation of a system from given poles and zeros

Scilab code Solution 3.1 gain equation of a system

```
1 clc;  
2 close;  
3 //Scilab 5.5.0;64 bit(windows 7)  
4 //to find gain of a system from poles and zeros  
5 printf("Given: Poles are s=-1,(-2+i),(-2-i); zeros s  
= -3+i,-3-i, Gain factor(k)=5 \n")  
6 num=poly([-3+%i,-3-%i], 's', 'roots');  
7 den=poly([-1,-2+%i,-2-%i], 's', 'roots');  
8 G=(5*num)/den;  
9 disp(G,"G(s) =")
```
