Part 1:

MATLAB Program:

Text

Description automatically generated

1.

2. Let be 0.

3.

Chart, line chart

Description automatically generated

4.

A picture containing diagram

Description automatically generated

A picture containing line chart

Description automatically generated

Part 2:

MATLAB Program:

Graphical user interface, text, application

Description automatically generated

1.

Let and be 0.

2.

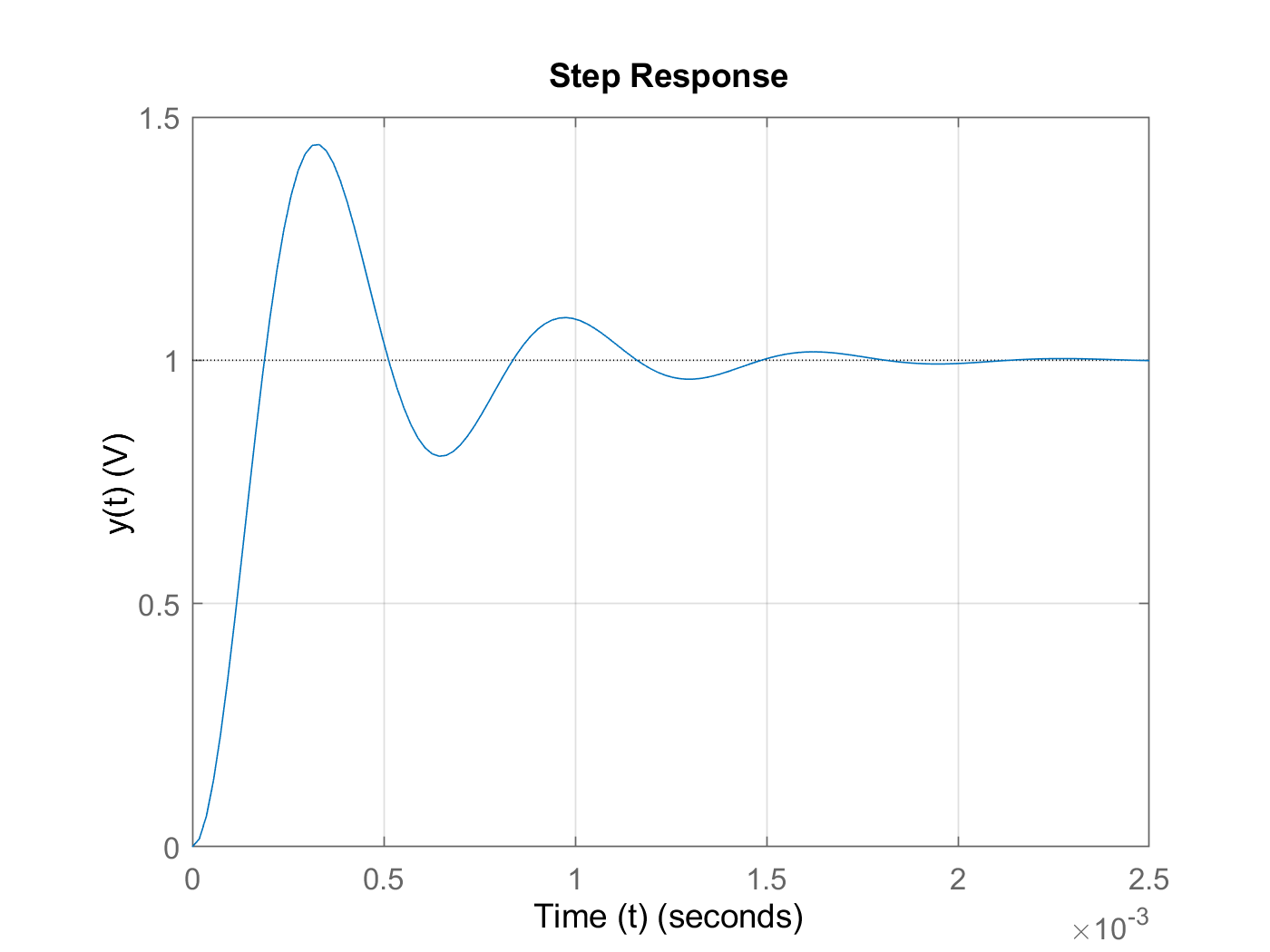
|  |  |
| --- | --- |
| R Value () | Roots |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |



Decreasing the resistance decreases system stability.

3.

:



:

Chart

Description automatically generated

:

Chart, histogram

Description automatically generated

:

Chart, histogram

Description automatically generated

:

Chart, bar chart, histogram

Description automatically generated

4. The further away from the complex axis (imaginary part = 0), the faster the signal dampens. When the poles are on the complex axis, the output oscillates permanently.

5.

Poles:

Chart, scatter chart

Description automatically generated

The system becomes unstable with negative resistance, with the magnitude of oscillation increasing infinitely.