

Module 12 - Second Order Time Response

ME3050 - Dynamics Modeling and Controls

Mechanical Engineering

Tennessee Technological University

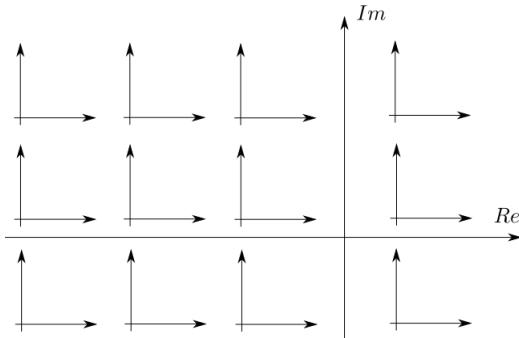
Topic 3 - Affect of Root Location on Response

Topic 3 - Affect of Root Location on Response

- The Complex Plane
- Along a Vertical Line
- Along a Horizontal Line
- Along a Diagonal Line

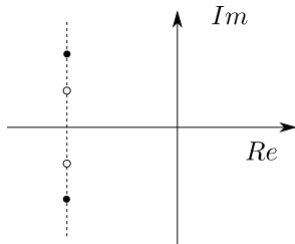
Affect of Root Location on Response

The *location* of the root in the *complex plane* shows the affects of the roots on the system behaviour.



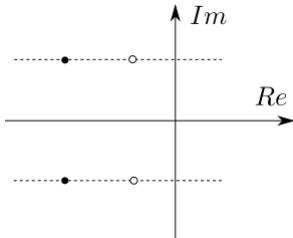
Along a Vertical Line

As the root moves along a vertical line...



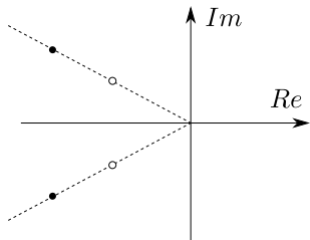
Along a Horizontal Line

As the root moves along a horizontal line...



Along a Diagonal Line

As the root moves along a diagonal line...



What about the angle of this line?