H =

9.87

----------

s^2 + 9.87

Continuous-time transfer function.

ans =

struct with fields:

RiseTime: NaN

SettlingTime: NaN

SettlingMin: NaN

SettlingMax: NaN

Overshoot: NaN

Undershoot: NaN

Peak: Inf

PeakTime: Inf

H =

9.87

--------------------

s^2 + 3.142 s + 9.87

Continuous-time transfer function.

ans =

struct with fields:

RiseTime: 0.5217

SettlingTime: 1.6837

SettlingMin: 0.9315

SettlingMax: 1.1629

Overshoot: 16.2929

Undershoot: 0

Peak: 1.1629

PeakTime: 1.1434

H =

9.87

--------------------

s^2 + 6.283 s + 9.87

Continuous-time transfer function.

ans =

struct with fields:

RiseTime: 1.0689

SettlingTime: 1.5100

SettlingMin: 0.9005

SettlingMax: 0.9997

Overshoot: 0

Undershoot: 0

Peak: 0.9997

PeakTime: 3.3900

H =

9.87

--------------------

s^2 + 9.425 s + 9.87

Continuous-time transfer function.

ans =

struct with fields:

RiseTime: 1.8648

SettlingTime: 2.6279

SettlingMin: 0.9012

SettlingMax: 0.9999

Overshoot: 0

Undershoot: 0

Peak: 0.9999

PeakTime: 8.2755

**3.2 - Q2**

Part 3

ans =

struct with fields:

RiseTime: 0.5024

SettlingTime: 2.6578

SettlingMin: 18.0863

SettlingMax: 23.6631

Overshoot: 18.4324

Undershoot: 0

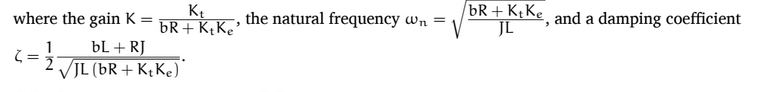
Peak: 23.6631

PeakTime: 2.1200

Natural Frequency: 3.5828

DC Gain = 1

Zeta = 0.6963



**4.3 – Q3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Frequency (Hz) | Ay | Yu = 1 | Magnitude (db) | Phase (deg)­­­ |
| 0.01 | 20 | 20 | -26.0206 | 0 |
| 0.1 | 20.42 | 20.02 | -26.2011 | 11.35929 |
| 0.2 | 21.66 | 19.83 | -26.7132 | 23.72139 |
| 0.4 | 23.81 | 10.73 | -27.5352 | 63.21454 |
| 0.5 | 21.2 | 0.6421 | -26.5267 | 88.26438 |
| 0.7 | 12.37 | -6.981 | -21.8474 | 124.3571 |
| 1 | 5.709 | -4.716 | -15.1312 | 145.6965 |
| 2.5 | 0.8269 | -0.7967 | 1.65094 | 164.4674 |
| 5 | 0.2026 | -0.1965 | 13.86721 | 165.9046 |

DC Gain = 26.02

System Order = 2

Cut off frequency = 0.5