

Command Window

IZT for ROC: $|z| > 1$:

$$0 + (2) * (1)^n * u(n) + (-1) * (0.5)^n * u(n)$$

IZT for ROC: $|z| < 0.5$:

$$0 - (2) * (1)^{-n-1} * u(-n-1) - (-1) * (0.5)^{-n-1} * u(-n-1)$$

IZT for ROC: $0.5 < |z| < 1$:

$$0 + (-2) * (1)^{-n-1} * u(-n-1) + (-1) * (0.5)^{-n-1} * u(n)$$

Poles:

3.0000
0.5000

Select case of ROC:

Enter choice (1/2/3): 1

ROC: $|z| > 0.5$

ROC is invalid (includes a pole)

Causality: Causal

System is UNSTABLE ($|z|=1$ not in ROC)

Enter choice (1/2/3): 2

ROC: $|z| < 3$

ROC is invalid (includes a pole)

Causality: Anti-Causal

System is UNSTABLE ($|z|=1$ not in ROC)

!

ROC: $0.5 < |z| < 3$

ROC is valid (does not include poles)

Causality: Two-Sided Causal

System is STABLE ($|z|=1$ lies in ROC)

!