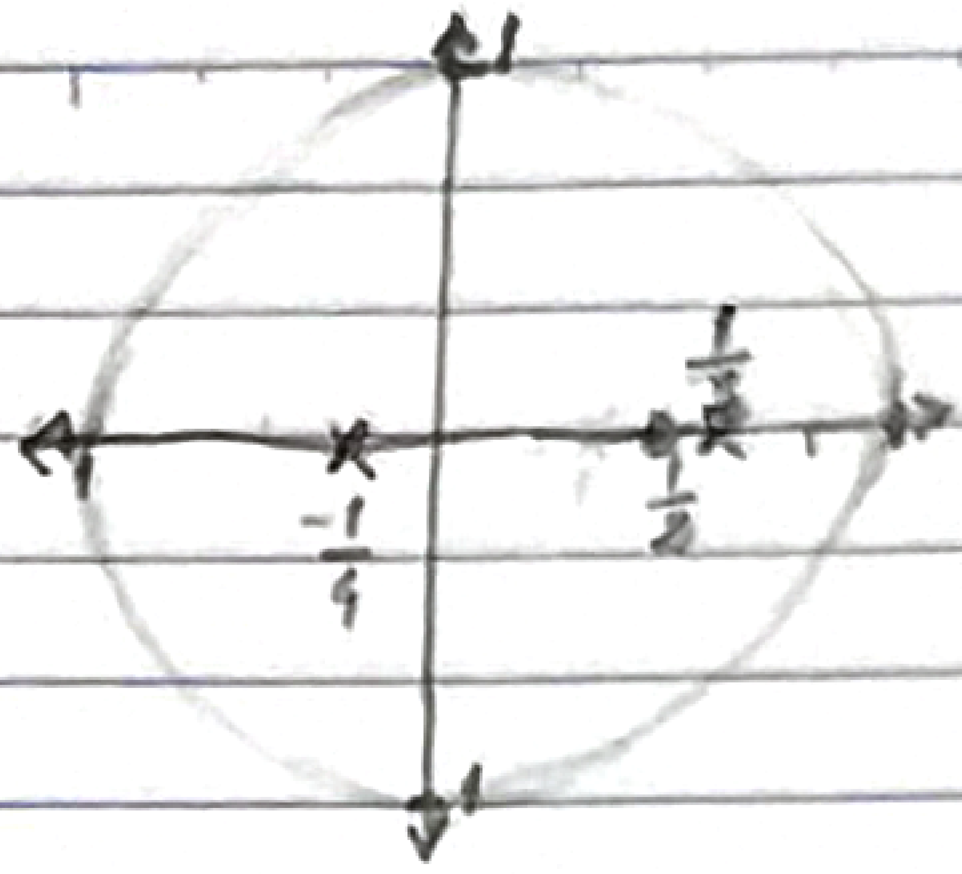
4. poles: $-\frac{1}{4}, \frac{1}{3}$

zero: $\frac{1}{5}$



$$H[z] = \frac{z-0{,}5}{\left(z+\frac{1}{4}\right)\left(z-\frac{1}{3}\right)}$$

$$H[z] = \frac{z-0{,}5}{z^2-\frac{1}{3}z+\frac{1}{4}z-\frac{1}{12}}$$

$$H[z] = \frac{z-0{,}5}{z^2-\frac{1}{12}z-\frac{1}{12}} \rightarrow H[z] = \frac{z^{-1}-0{,}5z^{-2}}{1-\frac{1}{12}z^{-1}-\frac{1}{12}z^{-2}}$$

$$\frac{Y[z]}{X[z]} = H[z]$$

$$\frac{Y[z]}{X[z]} = \frac{z^{-1}-0{,}5z^{-2}}{1-\frac{1}{12}z^{-1}-\frac{1}{12}z^{-2}}$$

$$Y[z]\left(1-\frac{1}{12}z^{-1}-\frac{1}{12}z^{-2}\right) = X[z]\left(z^{-1}-0{,}5z^{-2}\right)$$

$$Y[z]-\frac{1}{12}Y[z]z^{-1}-\frac{1}{12}Y[z]z^{-2} = X[z]z^{-1}-0{,}5X[z]z^{-2}$$

$$y[n]-\frac{1}{12}y[n-1]-\frac{1}{12}y[n-2] = x[n-1]-0{,}5x[n-2]$$

$$y[n] = x[n-1]-0{,}5x[n-2]+\frac{1}{12}y[n-1]+\frac{1}{12}y[n-2]$$

Answer: Yes, it's a stable and casual transfer function, cause the poles numbers are inside of the unit circle in the z plane.