8 Let $L=0$

with $h(\omega) = Z_2 + Z_3$

$\omega_{LC}^{-2} = LC$

$\tau = RC$

$K^2 = 1 - \left(\frac{\omega}{\omega_{LC}}\right)^2$

$$h(\omega) = \frac{K^4}{K^4 + (\omega\tau)^2} - j\frac{K^2\omega\tau}{K^4 + (\omega\tau)^2}$$

$Z_r = R + 0i$

$Z_C = 0 + 1/j\omega C$

$Z_L = 0 + j\omega L$

Since $L=0$ then

$\omega_{LC}^{-2} = 0$

and

$K^2 = 1 - \left(\frac{\omega}{0}\right)^2 = 1 - \text{undefined}$

so we can replace all K^2/K^4 with 1 in the equation

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Leaving us with

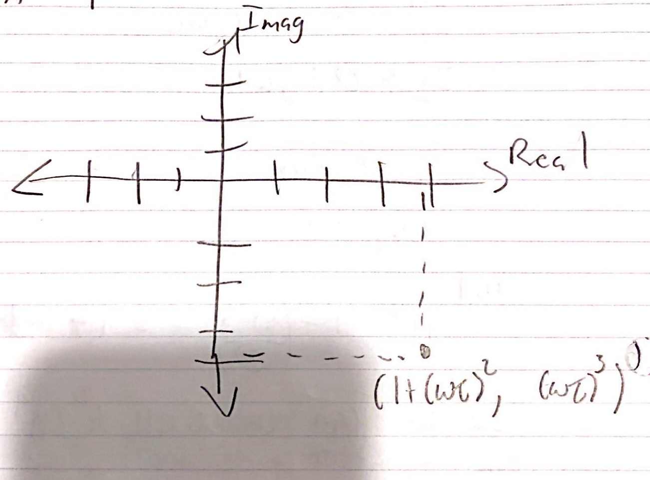
$$h(\omega) = \frac{1}{(\omega\tau)^2} - j\left(\frac{\omega\tau}{1+(\omega\tau)^2}\right)$$

remove fractions

$$h(\omega) = 1 + (\omega\tau)^2 - j\,(\omega\tau)^3$$

(real) (imaginary)

We know by the equation the point will be in the positive real axis and the negative imaginary axis therefor lying somewhere in Quadrant 4



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