

Laplace Transform

1.2

$$\frac{A}{s+a} \xrightarrow{\mathcal{L}^{-1}} Ae^{-at} u(t)$$

$$\frac{B\omega}{s+a + \omega} \xrightarrow{\mathcal{L}^{-1}} Be^{-at} \sin(\omega t) u(t)$$

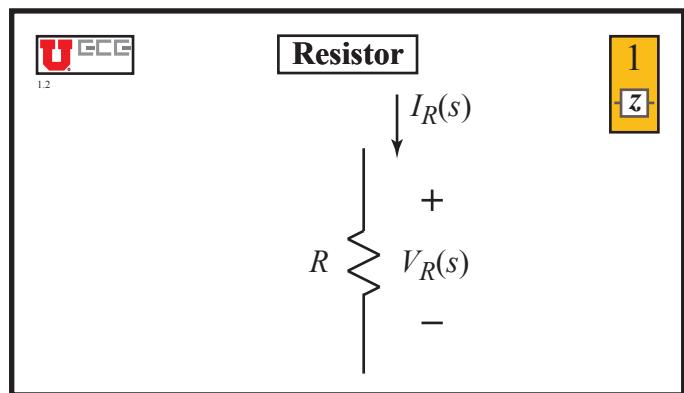
$$\frac{A}{s+a + \omega} \xrightarrow{\mathcal{L}^{-1}} Ae^{-at} \cos(\omega t) u(t)$$

Two Real Poles

1.2

$\frac{Ds+E}{s+a - s+b} = \frac{A}{s+a} + \frac{B}{s+b}$

$$A = \frac{-Da+E}{b-a}, \quad B = \frac{-Db+E}{a-b}$$

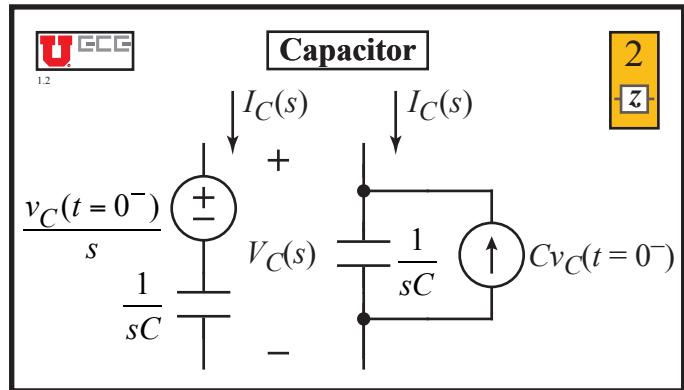


Double Pole

1.2

$\frac{Ds+E}{s+a} = \frac{A}{s+a} + \frac{B}{s+a}$

$$A = -Da+E, \quad B = D$$



Conjugate Poles

1.2

$\frac{Ds+E}{s+a + \omega} = \frac{A}{s+a + \omega} + \frac{B\omega}{s+a + \omega}$

$$A = D, \quad B = \frac{E - aD}{\omega}$$

