

The Steady-State Expression

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$$x(t) = x(\infty) + [x(0^+) - x(\infty)]e^{-\frac{t}{\tau}}$$

Ratio between Resistance and
Capacitance (τ)

$$\tau = R_{eq.} C_{eq.}$$

Ratio between Resistance and
Inductance (τ)

$$\tau = \frac{L_{eq.}}{R_{eq.}}$$