Prototype 2nd-Order System

So far, we have only seen transfer functions that have either real poles or purely imaginary poles:

$$\frac{1}{s+a}, \qquad \frac{1}{(s+a)(s+b)}, \qquad \frac{1}{s^2+\omega^2}$$

We also need to consider the case of *complex poles*, i.e., ones that have $\mathrm{Re}(s) \neq 0$ and $\mathrm{Im}(s) \neq 0$.

For now, we will only look at *second-order systems*, but this will be sufficient to develop some nontrivial intuition (dominant poles).

Plus, you will need this for Lab 1.