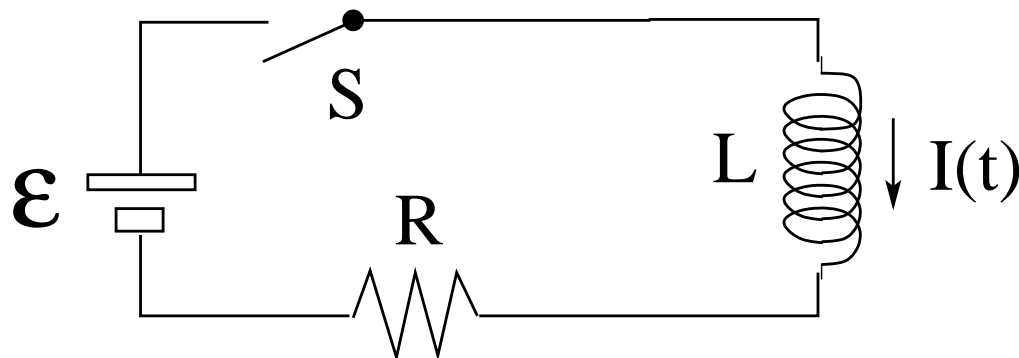


RL Circuit: Some Physical Properties



Specification of RL circuit by 3 device properties:

- \mathcal{E} [V] (emf)
- R [Ω] (resistance)
- L [H] (inductance)



Physical properties of RL circuit during current buildup determined by 3 combinations of the device properties:

- $\frac{\mathcal{E}}{L} = \left. \frac{dI}{dt} \right|_{t=0}$: initial rate at which current increases
- $\frac{\mathcal{E}}{R} = I(t = \infty)$: final value of current
- $L/R = \tau$: time it takes to build up 63% of the current through the circuit
[$1 - e^{-1} = 0.632 \dots$]