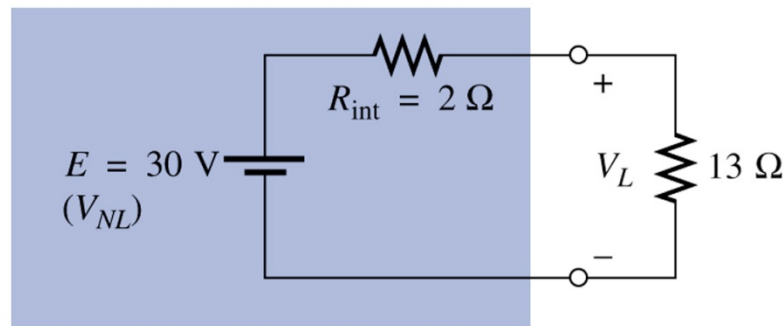# Breakout #1 – Voltage Regulation

(a)   Find the voltage across the load (full-load conditions)

(b)   Find the voltage regulation of the supply

(c)   How much power is lost due to Rint (under full-load)?

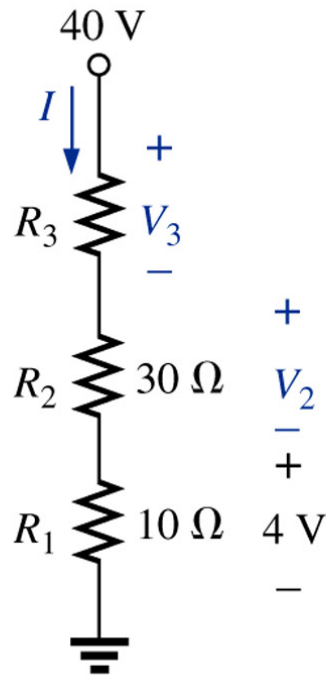$$P_{Rint} = \frac{V_{Rint}{}^2}{R_{int}} = \frac{(30\,V - 26\,V)^2}{2\,\Omega}$$

$$= 8\,W$$

$$V_L = E \cdot \frac{R_L}{R_T} = 30\,V \cdot \frac{13\,\Omega}{15\,\Omega} = 26\,V$$

$$VR = \frac{V_{NL} - V_{FL}}{V_{FL}} \cdot 100\% = \frac{30\,V - 26\,V}{26\,V} \cdot 100\%$$

$$= 15.39\%$$

NP

Breakout #2 – Voltage Divider

■ Find V2 and V3

$$V_2 = 3 \cdot 4\,\text{V} = 12\,\text{V}$$

$$V_3 = 40\,\text{V} - \left(V_2 + 4\,\text{V}\right) = 24\,\text{V}$$

NP