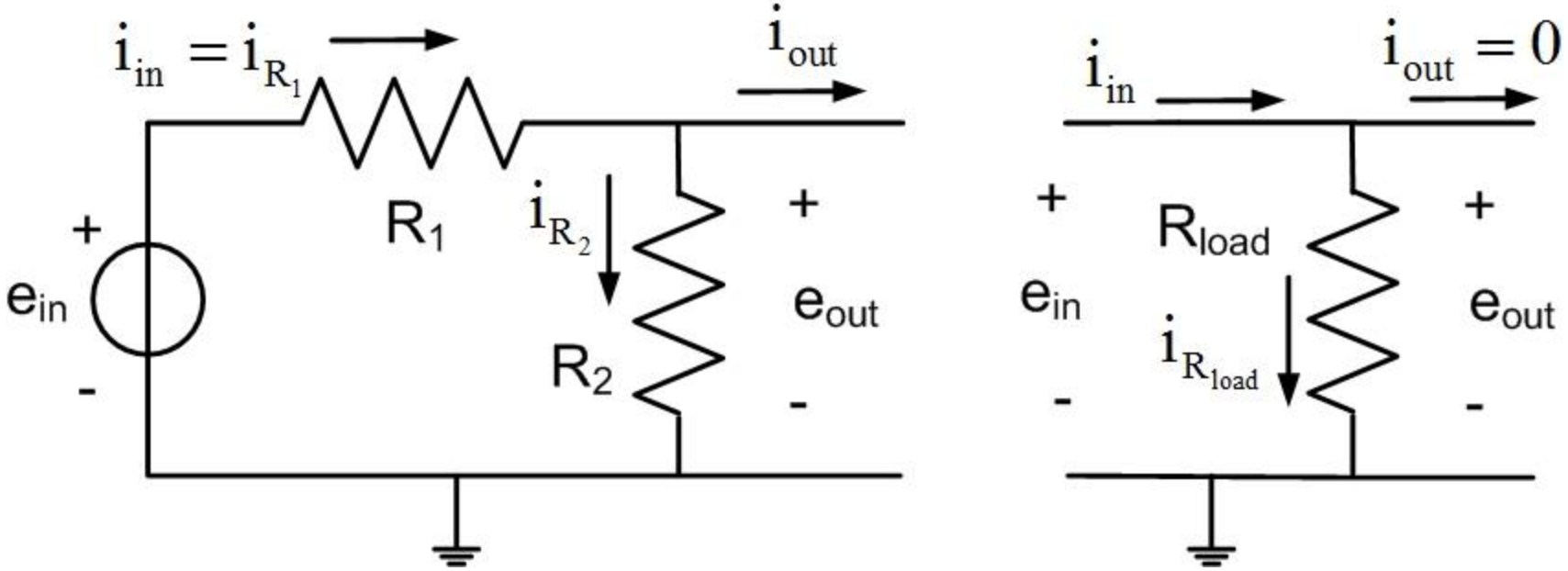
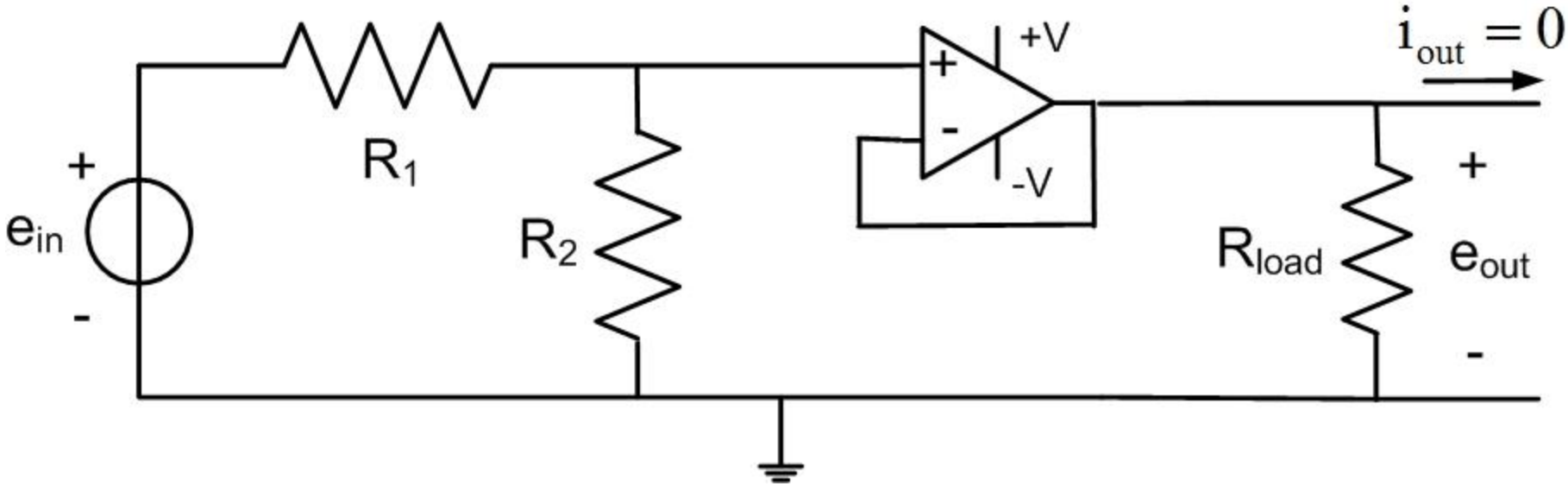
Loading of a Voltage Divider



Voltage Divider with Buffer Op-Amp



Loading of a Voltage Divider

$$e_{out} = e_{in}\frac{\dfrac{R_2 R_{load}}{R_2 + R_{load}}}{R_1 + \dfrac{R_{load} R_2}{R_2 + R_{load}}} = e_{in}\frac{\dfrac{R_2}{\dfrac{R_2}{R_{load}} + 1}}{R_1 + \dfrac{R_2}{\dfrac{R_2}{R_{load}} + 1}}$$

$R_1 = R_2 = R_{load}$

$$e_{out} = e_{in}\left(\frac{1}{3}\right)$$

Voltage Divider with Buffer Op-Amp

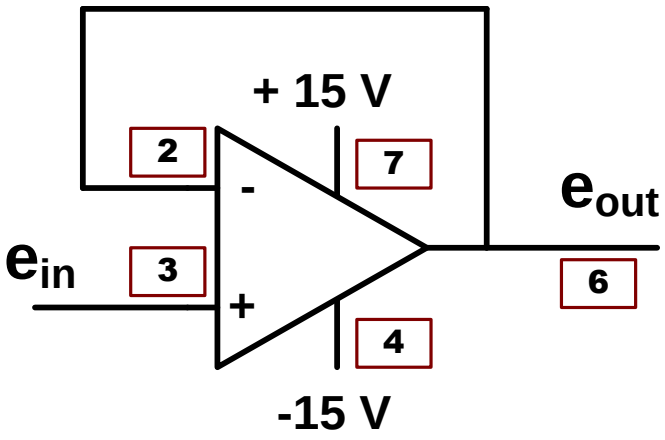
$$e_{out} = e_{in}\frac{R_2}{R_1 + R_2}$$

$R_1 = R_2 = R_{load}$

$$e_{out} = e_{in}\left(\frac{1}{2}\right)$$

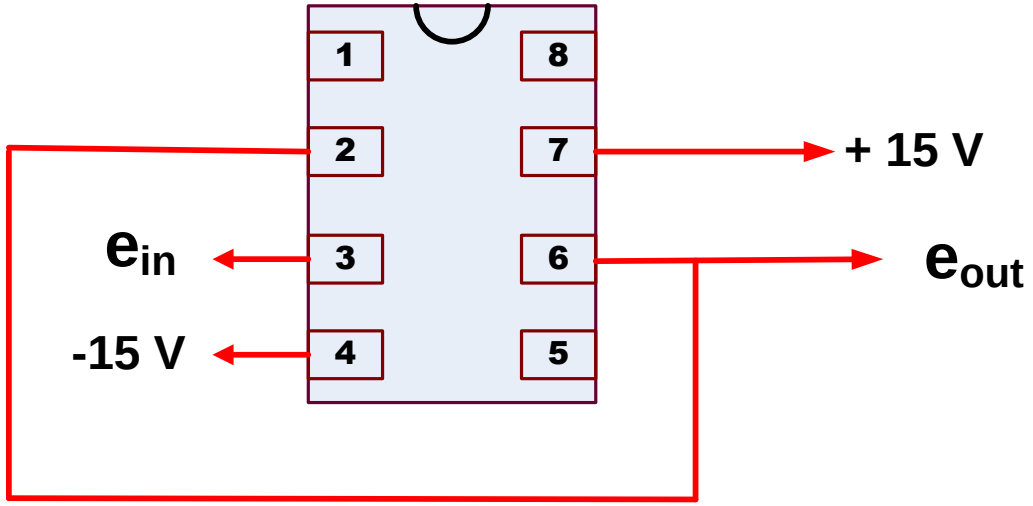
Unity-Gain Buffer Op Amp

$e_{in} = e_{out}$ and in phase



Circuit Diagram Representation

Wiring Diagram



Input Impedance = ∞ Output Impedance = 0