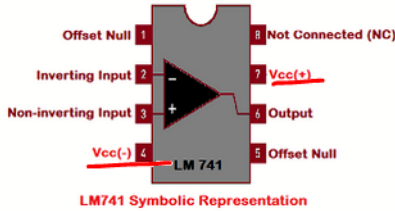


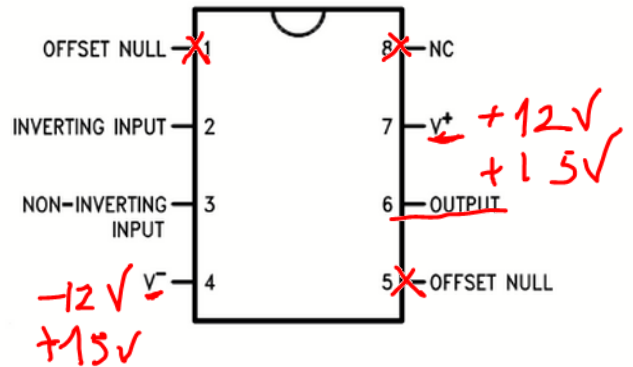
## LM 741 Pinout

Input # 1: Offset Null  
Input # 2: Inverting Input  
Input # 3: Non-inverting Input  
Input # 4: Vcc(-)  
Input # 5: Offset Null  
Input # 6: Output  
Input # 7: Vcc(+)  
Input # 8: Not Connected (NC)

LM741 Animation

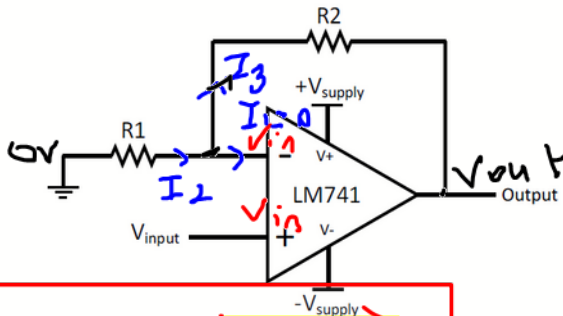


## NAB Package 8-Pin CDIP or PDIP Top View



## 2) Non-inverting Amplifier

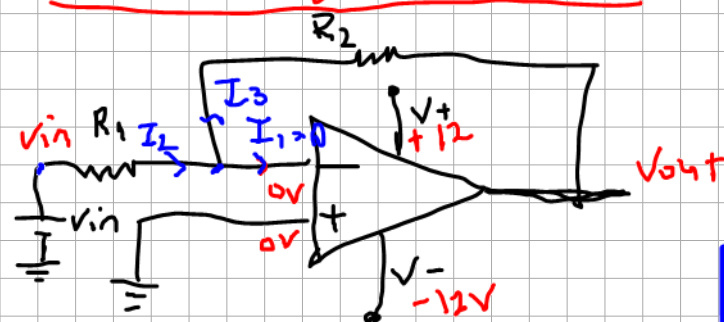
Typical Application



$$V_{out} = V_{in} \left( 1 + \frac{R_2}{R_1} \right)$$

$$\begin{aligned} \Rightarrow I_2 &= I_1 + I_3 \\ \Rightarrow \frac{0V - V_{in}}{R_1} &= \frac{V_{in} - V_{out}}{R_2} \\ \Rightarrow \frac{R_2}{R_1} &= \frac{V_{in} - V_{out}}{-V_{in}} = -1 + \frac{V_{out}}{V_{in}} \\ \Rightarrow 1 + \frac{R_2}{R_1} &= \frac{V_{out}}{V_{in}} \end{aligned}$$

## 1) Inverting Amplifier



$$I_2 = I_1 + I_3$$

$$\frac{V_{in}}{R_1} = \frac{-V_{out}}{R_2}$$

$$\begin{aligned} \Rightarrow \frac{V_{in} \cdot R_2}{R_1} &= -V_{out} \end{aligned}$$

$$V_{out} = -\frac{V_{in} \times R_2}{R_1}$$

$$V_{out} = \frac{-5V \cdot 10k}{1k} = -50V$$

$$\begin{aligned} V_{in} &= 100mV \\ R_2 &= 100k \\ R_1 &= 1k \\ \Rightarrow \frac{10^{-3} \cdot 100k}{1k} &= 10^{-1}V = 0.1V \end{aligned}$$