

# Inverting Operational Amplifier

## Student Group

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## Inverting Operational Amplifier

### Gain of Op-Amp

Build the following circuit in [figure 1](#) with the power supply and a multimeter.



Fig. 1: Inverting Op-Amp

$U_{DD} = 10\text{ V}$ ,  $U_{SS} = -10\text{ V}$ ,  $R_1 = 10\text{ k}\Omega$

Calculate the necessary value for  $R_2$ , so that the Output  $U_{OUT}$  is +5 V. Use the supply voltage of the operational amplifier for  $U_{IN}$ .

$U_{IN} =$

$R_2$

### Investigation of inverting input



Fig. 2: Inverting Op-Amp: Investigate inverting input

$U_{DD} = 10\text{V}$ ,  $U_{SS} = -10\text{V}$ ,  $R_1 = 10\text{k}\Omega$

For  $U_{IN}$ ,  $U_{OUT}$ ,  $R_2$  use the values from [figure 1](#).

Complete the arrows in the schematic of the circuit.

Determine the currents  $I_1$  and  $I_2$  indirectly through a voltage measurement.

Calculate the sum of the currents at  $\text{Node}_1$ .

$I_{\text{1}} \approx I_{\text{2}}$

$I_{\text{2}} \approx I_{\text{3}}$

$I_{\text{3}} \approx I_{\text{4}}$

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