

# Inverting Operational Amplifier

## Student Group

First Name	Surname	Matrikel Nr.

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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 the currents  $I_1$  and  $I_2$  indirectly through a voltage measurement.  
 Calculate the sum of the currents at node  $N_{12}$ .

$$I_{1} \approx I_{2}$$
$$I_{2} \approx I_{3}$$
$$I_{\Sigma N12} \approx I_{3}$$

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