

Mesh set

Student Group

First Name	Surname	Matrikel Nr.

Table of Contents

Mesh set

Set of nodes

2

2

Mesh set

In every closed circuit and every mesh of the network, the sum of all voltages is zero!

Set the voltage on the power supply to 12 V and measure this voltage precisely using a multimeter. Set up the measuring circuit shown in [figure 1](#).



Start drawing by
clicking here

Fig. 1: Mesh-set

Add the voltage arrows and measure U , U_{1} und U_{2} :



Start drawing by
clicking here

Tab. 1: Mesh set voltage measurement

What is the mesh set here?

Check the formula with the measured values:

The resistors R_{1} and R_{2} connected in series form a voltage divider. What is the ratio between the voltages U_{1} and R_{2} ?

$$\frac{U_1}{U_2} =$$

Set of nodes

At each junction point, the sum of all incoming and outgoing currents is equal to zero!

Set the voltage on the power supply to 12 V and measure the voltage accurately with a multimeter. In the first step, set up the measuring circuit shown in [figure 2](#):



Start drawing by
clicking here

Fig. 2: Node-set circuit 1

Draw the arrows for the directions of currents I_1 and I_2 in figure 3. The DC current measurement range must be set on both multimeter using the rotary switch. Then measure currents I_1 and I_2 and enter the measured values in table 2.



Start drawing by
clicking here

Fig. 3: Node-set circuit 2

What is the relationship between currents I_1 and I_2 ?

$$\frac{I_1}{I_2} =$$

Switch the power supply back on and measure the current I . Enter its value in table 2.



Start drawing by
clicking here

Tab. 2: Node set current measurement

Determine the node set for node K and check its validity.

Using the measured values for resistors R_1 , R_2 , and R_3 , calculate the total resistance R_{KP} :

Using the calculated value R_{KP} , check the measured value of the total current:

$$I = \frac{U}{R_{KP}} =$$

From:

<https://wiki.mexle.org/> - MEXLE Wiki

Permanent link:

https://wiki.mexle.org/mexlefirst_public/mesh-set?rev=1785503743

Last update: 2026/07/31 15:15

