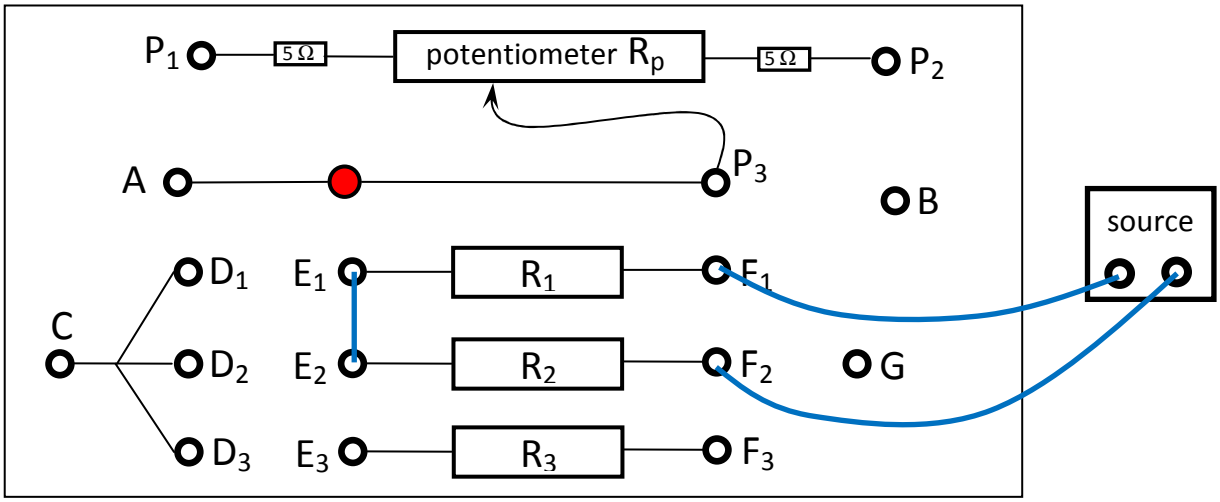
No. of the panel: **R_1 =** **R_2 =** **R_3 =**

No. of the source: **measured emf: ε =**



Draw the circuit diagram:

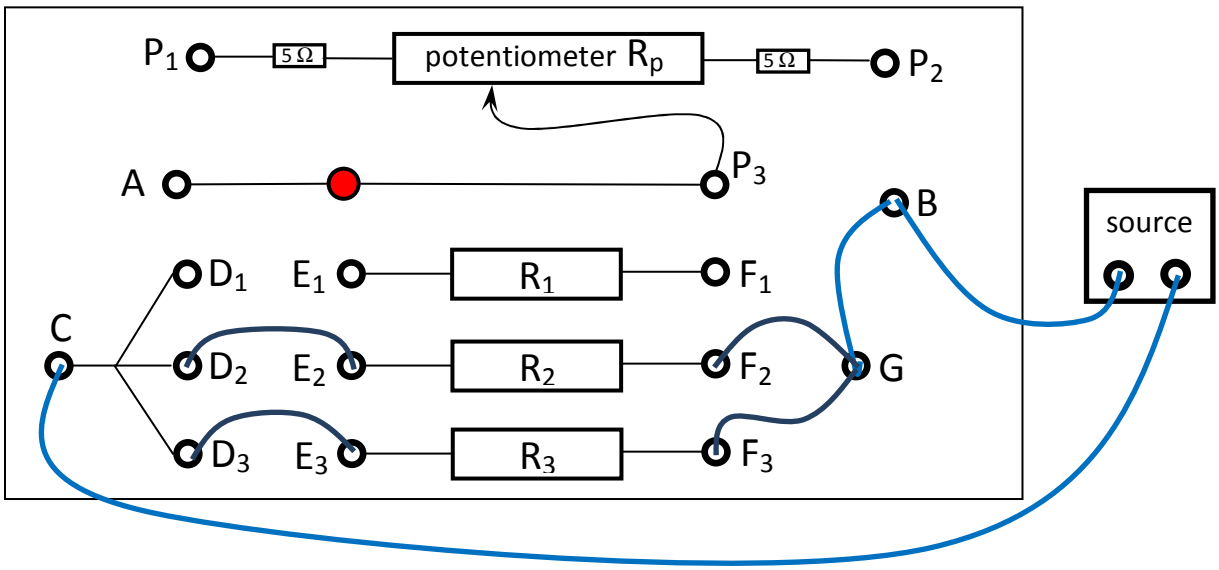
Connect the voltmeter between the points	measured voltage	resistance between the points	calculated current
E_1 and F_1	V_{E1F1} =		
E_1 and E_2	V_{E1E2} =		
E_2 and F_2	V_{E2F2} =		
F_1 and F_2	V_{F1F2} =		
			average:

The sum of the voltages ..... and ..... equals the voltage .....

Terminal voltage of the source: V_T =

Calculate the internal resistance of the source from the formula $V_T = \varepsilon - R_i \cdot I$ using the average current:

R_i =



Draw the circuit diagram:

Remove the wire connecting D_2 and E_2
D_3 and E_3
B and G and connect the ammeter in series between those points.

	measured current	resistance of the branch	calculated voltage
D_2 and E_2	I_2 =		
D_3 and E_3	I_3 =		
B and G	I_s =		

The sum of the currents ..... and ..... equals the current .....

Estimate the resistance of the ammeter:

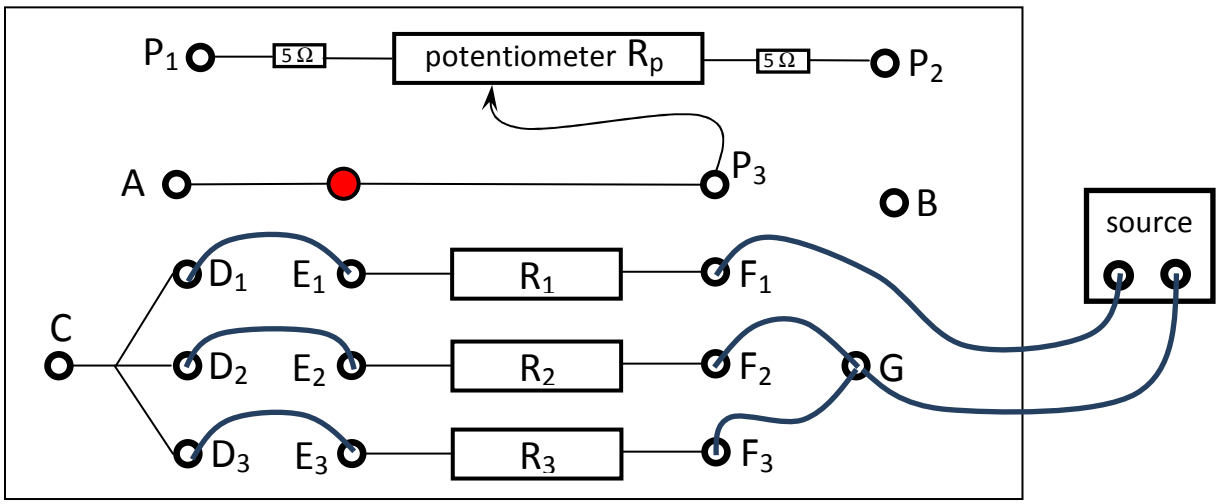
calculate the resultant resistance of the circuit from R_2, R_3 and R_i :

$R_{res,\,c}$ =

calculate the resultant resistance of the circuit from ε and I_s :

$R_{res,\,m}$ =

$R_A = R_{res,\,m} - R_{res,\,c} \approx$



Draw the circuit diagram:

Remove the wire connecting D_1 and E_1
D_2 and E_2
D_3 and E_3 and connect the **ammeter** in series between those points.

	measured current	resistance	calculated voltage
D_1 and E_1	I_1 =		
D_2 and E_2	I_2 =		
D_3 and E_3	I_3 =		

The sum of the currents …… and …… equals the current ……

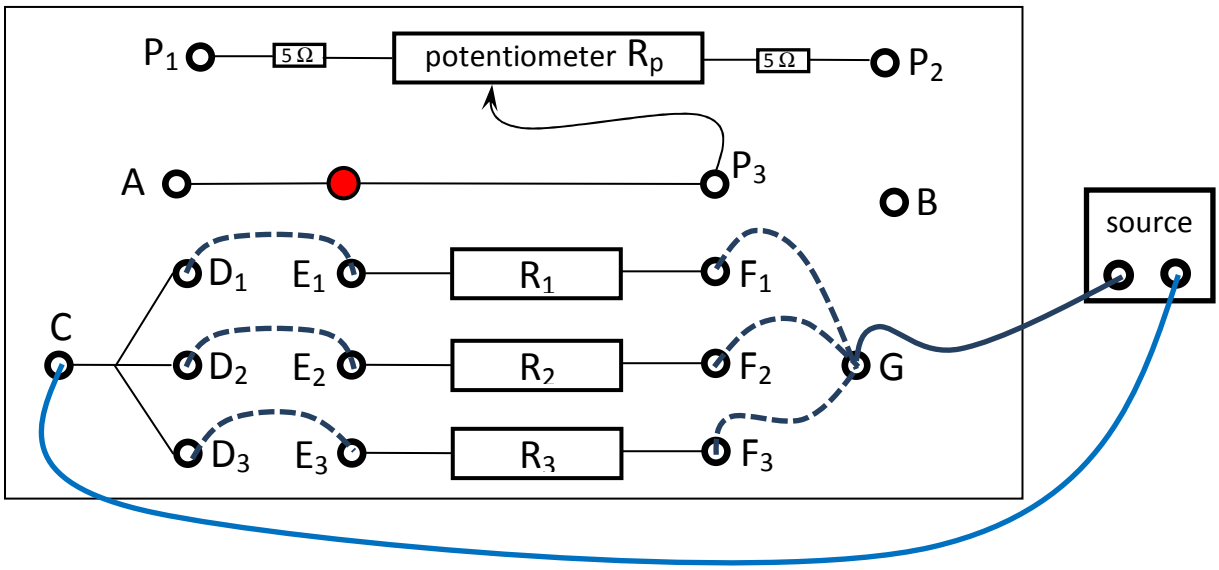
The voltages …… and …….. are equal.

Connect the **voltmeter** between	measured voltage	resistance	calculated current
E_1 and F_1	V_{E1F1} =		
E_2 and F_2	V_{E2F2} =		
E_3 and F_3	V_{E3F3} =		
F_1 and G	V_{F1G} =		

The voltages …… and …….. are equal.

The sum of the voltages …… and …… equals the voltage ……

The currents …… and …….. are equal.



Measure the voltage between the points C and G.

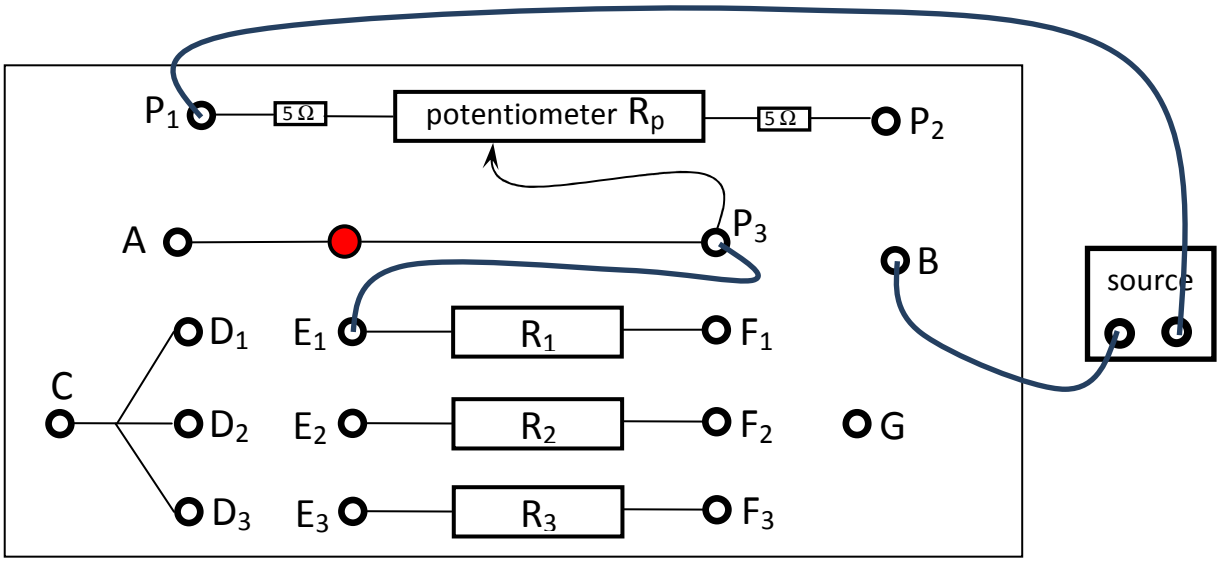
resistances connected	resistance of the load R_L	measured voltage V_T	$V_T / (\varepsilon - V_T)$

Plot $V_T / (\varepsilon - V_T)$ against R_L and calculate R_i from the slope:

$V_T = \varepsilon - I \cdot R_i$ and $I = \varepsilon / (R_L + R_i)$ $\rightarrow$ $V_T = \varepsilon \cdot R_L / (R_L + R_i)$ and $\varepsilon - V_T = \varepsilon \cdot R_i / (R_L + R_i)$

$\rightarrow$ $V_T / (\varepsilon - V_T) = R_L / R_i = (1/R_i) \cdot R_L$

Measure the resistance between P_1 and P_2: R_{P1P2} =
The resistance of the potentiometer: $R_p = R_{P1P2} - 10$ =



Connect the ammeter between the points F_1 and B.

Draw the circuit diagram:

Measure the maximum and the minimum value of the current:

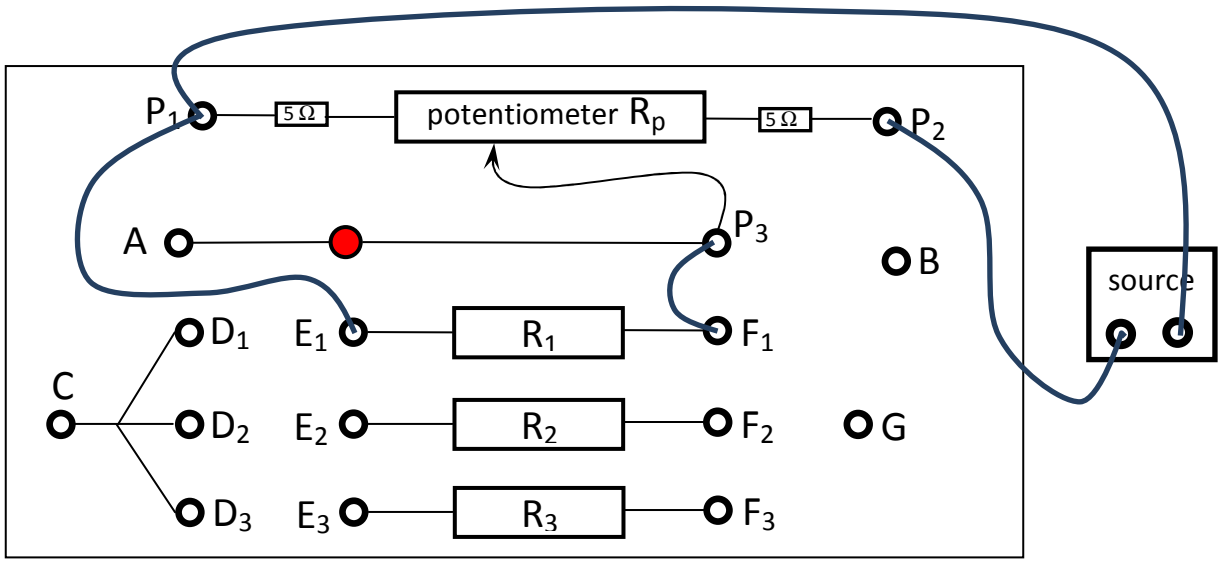
$I_{max,m}$ = $I_{min,m}$ =

Calculate the maximum and the minimum value of the current:

$I_{max,c} = \varepsilon / (R_i + R_1 + R_A)$ =

$I_{min,c} = \varepsilon / (R_i + R_1 + R_A + R_p)$ =

Deviation of the measured and calculated values:



Connect the voltmeter between the points E_1 and F_1.

Draw the circuit diagram:

Measure the maximum and the minimum value of the voltage:

V_{max} = V_{min} =