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. مقاطع فيديوهات لشرح المقرر بشكل وافي
. ملخص للمادة Pdf للمذكرة والمراجعة
. محاضرات مباشرة علي برنامج زووم
لمناقشة الأجزاء الغير مفهومة
. تواصل مستمر مع معلم المادة
للتواصل
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EXPERIMENT 1
OHM'S LAW

Objective:

The object of this test is to verify experimentally that, the voltage drop across an ohmic resistance caused by flowing an electrical current through it - is directly proportional to the value of this current. The constant of proportionality is the ohmic value of the resistance. Mathematically, Ohm's law takes the form:

Where:
V = Voltage drop in (volts) , I = Current in (A) , and R = resistance in (Ω) Equipment:

a) Test board.
b) Three known resistances, 2.5 KΩ, 5 KΩ and 10 KΩ.
c) DC power supply.
d) Two multimeters.

Work Steps:

a) Connect the circuit shown in Fig. I

$V = I * R$

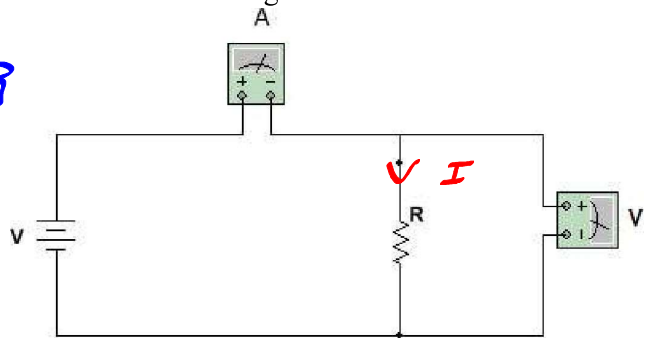


Fig. 1

b) Use a resistor RI. Make sure that the polarity of the voltage source and the multimeters is correct and that the correct measurement range has been selected.
c) Start with 2 Volts; increase the input voltage to 10 V in steps of 2 volts. Measure the current (I) at each step. Do not change the measurement range settings of the multimeter. Record the results in Table 1.1.
d) Repeat the measuring sequence using the resistor R2. Do not change the measurement range settings and record the results in Table 2.
e) Repeat the measurement sequence once more using the resistor R3 and record the results in Table 3.
f) Determine the quotient V/I for the values recorded in Table 1 and enter them in columns in the same Tables.
g) Compare the values of V/I in each table with the value of the corresponding resistance.
h) Plot the values measured on the graph as shown below in Fig. 2.
i) Verify that R = tan ɵ

Results:

Table 1

R1 = 250 Ω		
V (V)	I (A) mA	V/I (Ω)
2	0.8	250
4	1.6	
6	2.4	
8	3.2	
10	4	

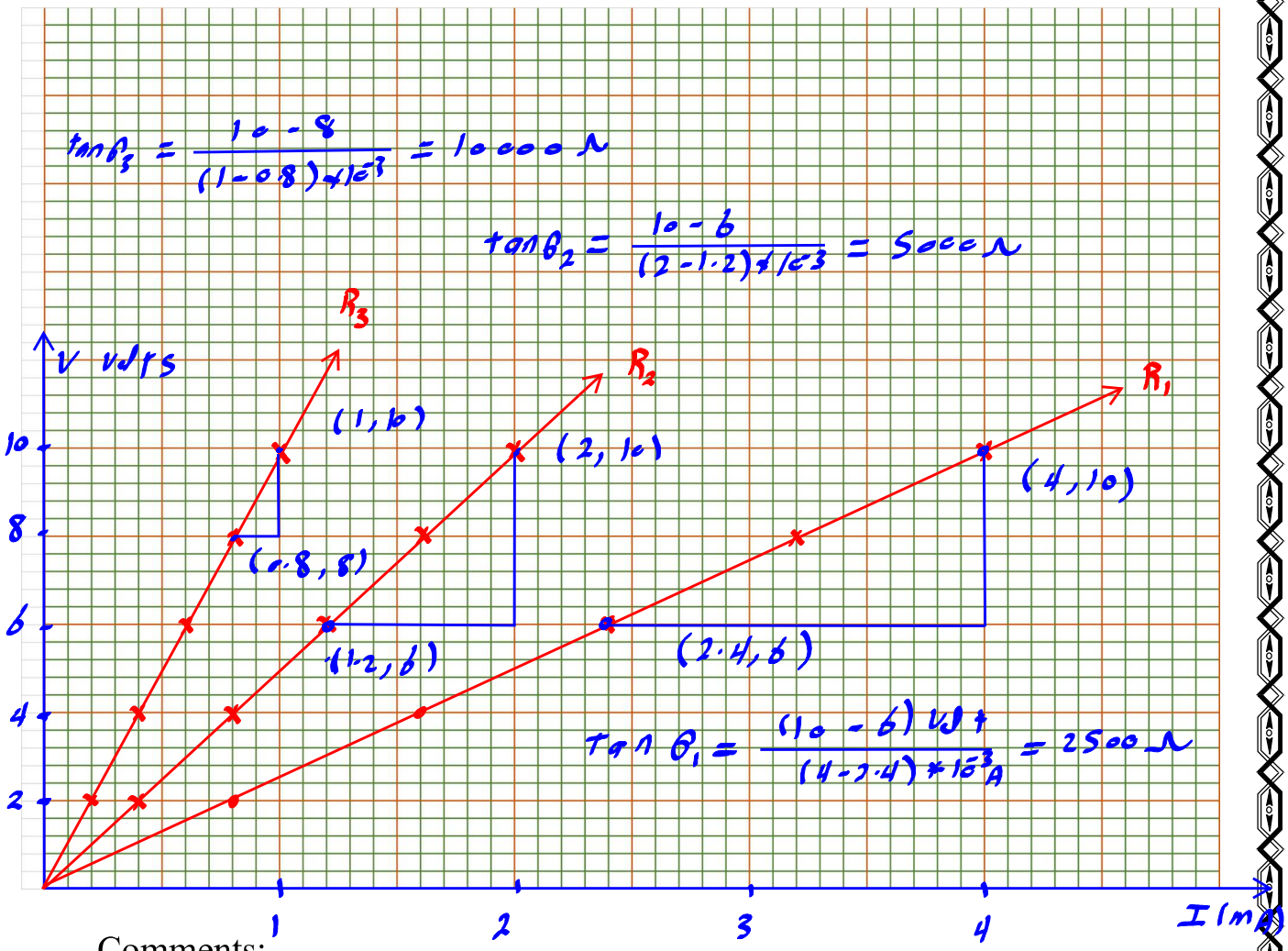
Table 2

R2 = 5000 Ω		
V (V)	I (A) mA	V/I (Ω)
2	0.4	5000
4	0.8	
6	1.2	
8	1.6	
10	2	

Table 3

R3 = 10000 Ω		
V (V)	I (A) mA	V/I (Ω)
2	0.2	10000
4	0.4	
6	0.6	
8	0.8	
10	1	

Figure 2 V-I characteristic



Comments:

$\tan\theta = \frac{V}{I} = R \Rightarrow V = IR$