Lab 5: Verification of Superposition Theorem.

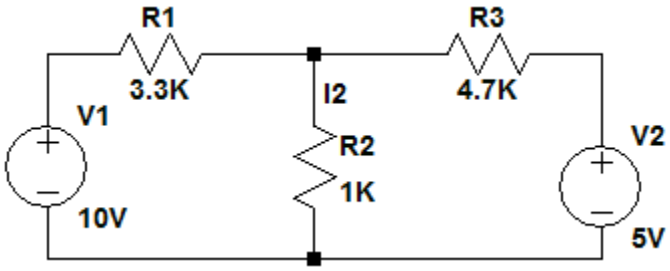
Objective:

- To verify Superposition Theorem.

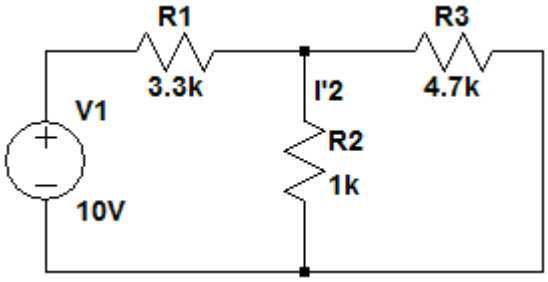
List of Equipment

- Bread Board
- DC power source
- DMM
- 1 x 3.3kΩ resistor
- 1 x 4.7kΩ resistor
- 1 x 1KΩ resistor

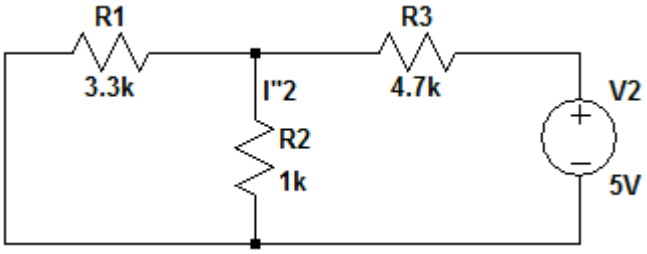
Circuit Diagram



Circuit 1



Circuit 2



Circuit 3

Procedure:

1. Set up Circuit 1.
2. Mark the polarities of each resistor.
3. With both the voltage source connected to the circuit, measure I_2 , V_{R1}, V_{R2}, V_{R3} and record the values in appropriate tables.
4. Setup Circuit 2. Measure and record I'_2, V'_{R1}, V'_{R2}, V'_{R3}.
5. Setup Circuit 3. Measure and record I''_2, V''_{R1}, V''_{R2}, V''_{R3}.

NORTH SOUTH UNIVERSITY

DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING

EEE/ETE141

Data Collection for Lab 5:

Group No. _____

Instructor's Signature _____

Table 1:

I_2	I'2	I"2	I'2 + I"2

Table 2:

V_{R1}	V'_{R1}	V''_{R1}	$V'_{R1}+ V''_{R1}$

Table 3:

V_{R2}	V'_{R2}	V''_{R2}	$V'_{R2}+ V''_{R2}$

Table 4:

V_{R3}	V'_{R3}	V''_{R3}	$V'_{R3}+ V''_{R3}$

Report:

1. What is Superposition Theorem?
2. Theoretically calculate all values of Table 1 to Table 4. **Show all the steps in details.**
3. Using measured data, show that your circuit followed superposition theorem.
4. Find the % Error between your theoretical and experimental values.