

Name: \_\_\_\_\_ Course: \_\_\_\_\_ Date: \_\_\_\_\_

# **CIRCUIT CHALLENGE: USE PHET CIRCUIT CONSTRUCTION KIT- VIRTUAL LAB VERSION 4/23/09 LOEBLEIN**

Directions:

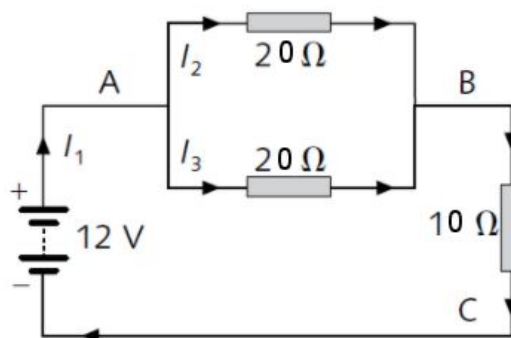
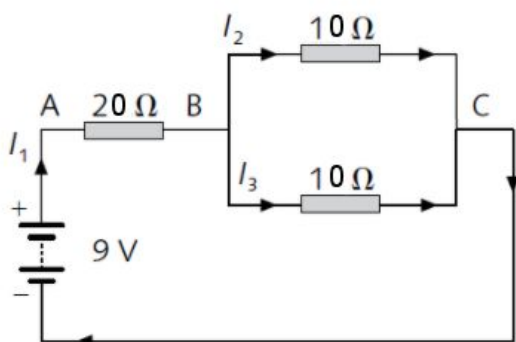
1. Log on to your computer
2. Go to the following website:  
<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>
3. Click "Run now."

You now have the raw material to create a circuit. Take a moment to look over the site and find all the different materials. To build a circuit you will need several wires, a light bulb, a voltage source, a voltmeter, and a non – contact ammeter. Play with it to see how to grab and manipulate these tools.

Click the reset button.

*NOTE: when checking, be careful with the decimal round and the units.*

1. For both circuits: Determine  $V_{ab}$ ,  $V_{bc}$ ,  $I_1$ ,  $I_2$  e  $I_3$ . Show your work and then check your answer with PhET



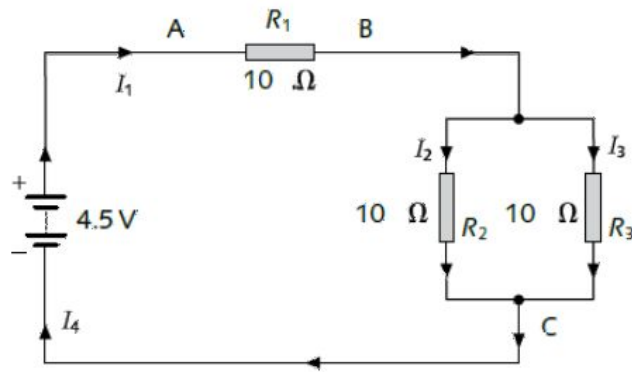
Circuit 1:

| $V_{AB}$ | $V_{BC}$ | $I_1$ | $I_2$ | $I_3$ |
|----------|----------|-------|-------|-------|
|          |          |       |       |       |

Circuit 2:

| $V_{AB}$ | $V_{BC}$ | $I_1$ | $I_2$ | $I_3$ |
|----------|----------|-------|-------|-------|
|          |          |       |       |       |

2. Fill in the table for this circuit. Show your work and then check your answer with PhET



|          |  |            |  |
|----------|--|------------|--|
| $R_T$    |  | $I_3$      |  |
| $V_{AB}$ |  | $I_4$      |  |
| $V_{BC}$ |  | $P_1$      |  |
| $V_{AC}$ |  | $P_2$      |  |
| $I_1$    |  | $P_3$      |  |
| $I_2$    |  | $P_{PILA}$ |  |

3. A parallel circuit has 3 resistors each on different paths connected to a 12 V potential difference. The resistors have resistances of 5.0, 7.5 , and 10  $\Omega$  ? Draw a picture of the circuit. Fill in the table for this circuit. Show your work and then check your answer with PhET.

| Add units to measurements | 5.0 $\Omega$ | 7.5 $\Omega$ | 10 $\Omega$ | TOTAL |
|---------------------------|--------------|--------------|-------------|-------|
| V                         |              |              |             |       |
| I                         |              |              |             |       |
| R                         |              |              |             |       |
| P                         |              |              |             |       |