

Parallel Circuit Practice

Fill in the chart below using the information from the parallel circuit:

Don't forget the rules of parallel circuits:

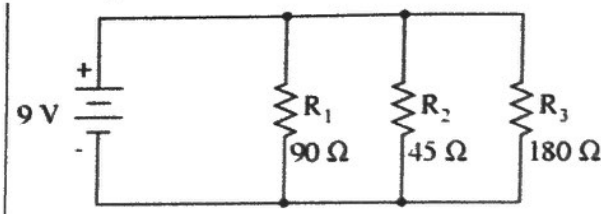
1- Resistance: $1/R_T = 1/R_1 + 1/R_2 + 1/R_3 \dots$

2- Current: $I_T = I_1 + I_2 + I_3 \dots$

3- Voltage: $\Delta V_T = \Delta V_1 = \Delta V_2 = \Delta V_3$

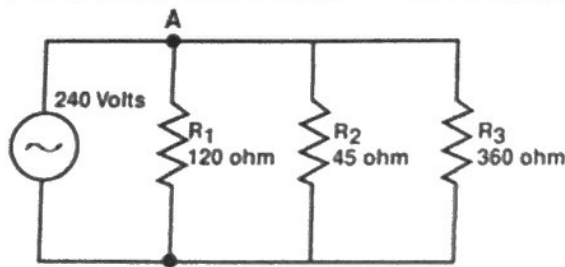
4- Ohms Law: $V = IR$

Practice problem 1:



$R_T =$	25.7 Ω	$I_T = V/R_T = 0.35A$	$V_T = 9V$
$R_1 =$	90 Ω	$I_1 = 0.1A$	$V_1 = 9V$
$R_2 =$	45 Ω	$I_2 = 0.2A$	$V_2 = 9V$
$R_3 =$	180 Ω	$I_3 = 0.05A$	$V_3 = 9V$

Practice problem 2:



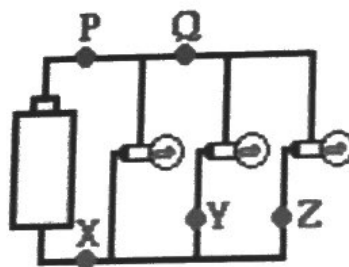
$R_T =$	30 Ω	$I_T = V/R_T = 8A$	$V_T = 240V$
$R_1 =$	120 Ω	$I_1 = 2A$	$V_1 = 240V$
$R_2 =$	45 Ω	$I_2 = 5.3A$	$V_2 = 240V$
$R_3 =$	360 Ω	$I_3 = 0.67A$	$V_3 = 240V$

Questions on Parallel Circuits:

3. As more and more resistors are added in parallel to a circuit, the equivalent resistance of the circuit decreases (increases, decreases) and the total current of the circuit increases (increases, decreases).

4. Three identical light bulbs are connected to a D-cell as shown below. P, Q, X, Y and Z represent locations along the circuit. Which one of the following statements is true?

- a. The current at Y is greater than the current at Q.
- b. The current at Y is greater than the current at P.
- c. The current at Y is greater than the current at Z.
- d. The current at P is greater than the current at Q.
- e. The current at Q is greater than the current at P.
- f. The current is the same at all locations.



5. Which adjustments could be made to the circuit below that would decrease the current in the cell? List all that apply.

- a. Increase the resistance of bulb X.
- b. Decrease the resistance of bulb X.
- c. Increase the resistance of bulb Z.
- d. Decrease the resistance of bulb Z.
- e. Increase the voltage of the cell (somehow).
- f. Decrease the voltage of the cell (somehow).
- g. Remove bulb Y.

