

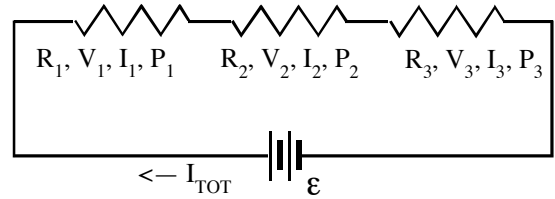
PhyzJob: Circuit Puzzles

CONCEPTS AND NUMBERS



SERIES INQUIRIES (Items 1–5)

Consider the series circuit shown to the right.



1. If $I_1 = 3.7 \text{ A}$, what is

a. $I_2?$ _____ b. $I_3?$ _____

c. $I_{\text{TOT}}?$ _____

2. If $V_1 = 2 \text{ V}$, $V_2 = 1 \text{ V}$, and $V_3 = 5 \text{ V}$, what is $\epsilon?$ _____

3. If $V_1 = V_2 = V_3 = 4 \text{ V}$ and $I_1 = I_2 = I_3 = 3 \text{ A}$, what is

a. $\epsilon =$ _____ b. $I_{\text{TOT}}?$ _____

4. If $\epsilon = 18 \text{ V}$, $V_1 = 4 \text{ V}$, and $V_2 = 8 \text{ V}$, what is $V_3?$ _____

5. If $I_1 = 5 \text{ A}$, $R_2 = 3 \Omega$, and $P_3 = 10 \text{ W}$, what is

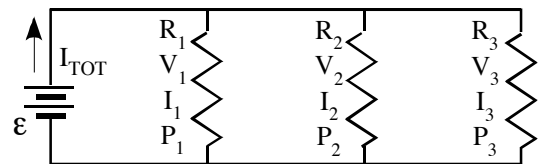
a. $V_2?$ _____ b. $V_3?$ _____

c. $P_2?$ _____

d. $R_3?$ _____

PARALLEL PONDERABLES (Items 6–9)

Consider the series circuit shown to the right.



6. If $\epsilon = 7.3 \text{ V}$, what is

a. $V_1?$ _____ b. $V_2?$ _____

c. $V_3?$ _____

7. If $I_1 = 3.4 \text{ A}$, $I_2 = 1.8 \text{ A}$, and $I_3 = 0.6 \text{ A}$, what is $I_{\text{TOT}}?$ _____

8. If $V_1 = V_2 = V_3 = 4 \text{ V}$ and $I_1 = I_2 = I_3 = 3 \text{ A}$, what is

a. $\epsilon =$ _____ b. $I_{\text{TOT}}?$ _____

9. If $V_1 = 6 \text{ V}$, $R_2 = 4 \Omega$, and $P_3 = 12 \text{ W}$, what is

a. I_2 ?

b. I_3

c. P_2 ?

d. R_3 ?

COMPOUND CONUNDRUMS (Items 10–15)

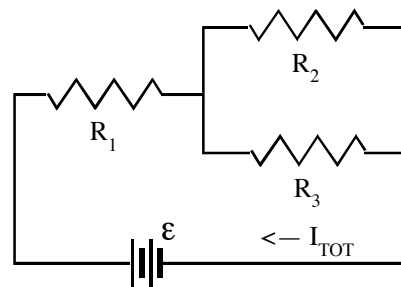
Consider the compound circuit shown to the right.

10. If $I_2 = 5 \text{ A}$ and $I_3 = 2 \text{ A}$, what is I_1 ? _____

11. If $V_1 = 7 \text{ V}$, $V_2 = 4 \text{ V}$, and $V_3 = 4 \text{ V}$, what \mathcal{E} ? _____

12. Removing one bulb puts the other two out.

Which bulb is removed? _____



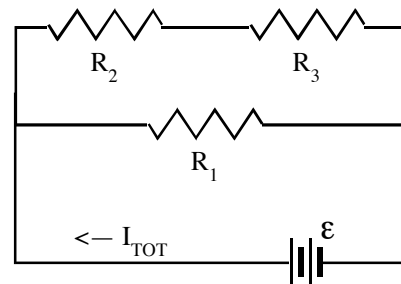
Consider the compound circuit shown to the right.

13. If $V_2 = 4 \text{ V}$ and $V_3 = 6 \text{ V}$, what is V_1 ? _____

14. If $I_1 = 3 \text{ A}$, $I_2 = 2 \text{ A}$, and $I_3 = 2 \text{ A}$, what I_{TOT} ? _____

15. Removing two bulb leaves the other one on.

Which bulb stays on? _____



V E . 7 . 5 V E . 7 . d V E . 7 . 6 . 8 Ω 4 . 0 . b W 2 7 . 5 V 5 . d V 2 1 . 6 . 2 V 8 . 4 A 8 . d V 5 1 . 6 . 8 V 8 . 5 A 7 . 8 . 5 A 7 . 8 . d A 7 . 8 . 6 . 1
 1 . 2 1 A 2 . 4 1 V 0 1 . 8 1 1 . 5 1 V 1 1 . 1 1 A 7 . 0 1 Ω 8 . b W 8 . 5 A 5 . d A 2 . 1 . 6 8 A 8 . d V 4 . 6 . 8 A 8 . 2 . 7