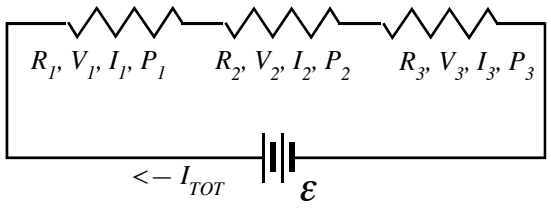
PhyzJob: Circuit Puzzles
CONCEPTS AND NUMBERS

SERIES INQUIRIES (Items 1–5)
Consider the series circuit shown to the right.



1. If $I_1 = 3.7$ A, what is

a. I_2? _____ b. I_3? _____

c. I_{TOT}? _____

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

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

a. $\mathcal{E}$ = _____ b. I_{TOT}? _____

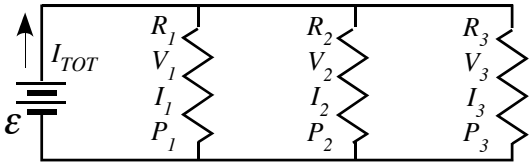
4. If $\mathcal{E} = 18$ V, $V_1 = 4$ V, and $V_2 = 8$ V, what is V_3? _____

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

a. V_2? b. V_3?

c. P_2? d. R_3?

PARALLEL PONDERABLES (Items 6–9)
Consider the parallel circuit shown to the right.



6. If $\mathcal{E} = 7.3$ V, what is

a. V_1? _____ b. V_2? _____

c. V_3? _____

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

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

a. $\mathcal{E}$ = _____ b. I_{TOT}? _____

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

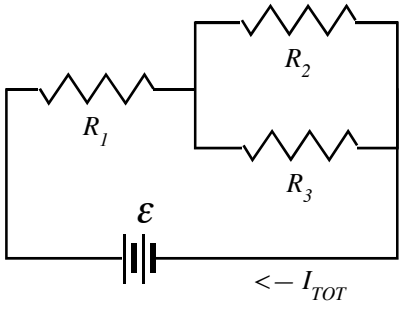
a. I_2?

b. I_3

c. P_2?

d. R_3?

COMPOUND CONUNDRUMS (Items 10–15)
Consider the compound circuit shown to the right.



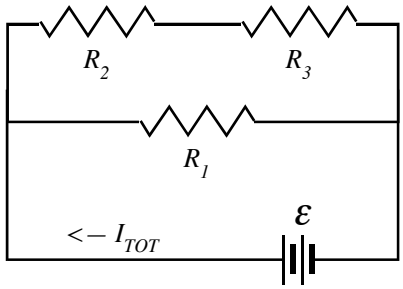
10. If $I_2 = 5$ A and $I_3 = 2$ A, what is I_1? _____

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

12. Removing one bulb puts the other two out.

Which bulb is removed? _____

Consider the compound circuit shown to the right.



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

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

15. Removing two bulbs leaves the other one on.

Which bulb stays on? _____

1.a. 3.7 V b. 3.7 A c. 3.7 A d. 3.7 A 2.8 V 3.a. 12 V b. 3 A 4.6 V 5.a. 15 V b. 2 V c. 75 W d. 0.4 Ω 6.a. 7.3 V b. 7.3 V c. 7.3 V
7.5 A 8.a. 4 V b. 9 A 9.a. 1.5 A b. 2 A c. 9 W d. 3 Ω 10. 7 A 11. 11 V 12. 1 13. 10 V 14. 5 A 15. 1