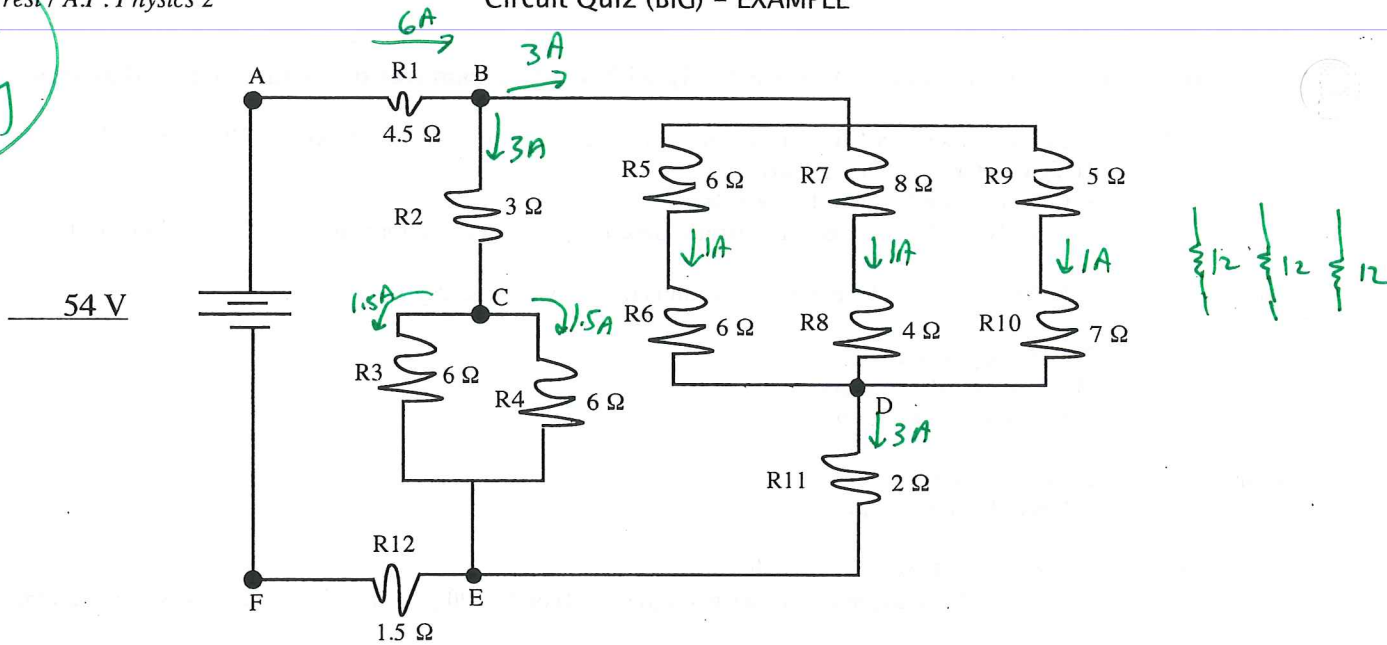


Key



Directions: Place the answers (with units) to the following problems, which refer to the circuit above, in the spaces provided at the right. Do the computations mentally if you can, but compute if needed - with your work near the appropriate blank. If you get an answer wrong and do not show work, you cannot earn partial credit. If answers need to be rounded, please no more than 3 digits!

- | | |
|---|--|
| 1. What is the equivalent resistance of R3 and R4? $\frac{1}{6} + \frac{1}{6}$ | 1. <u>3Ω</u> |
| 2. What is the combined resistance of R2, R3 and R4? $3 + 3$ | 2. <u>6Ω</u> |
| 3. What is the combined resistance of R5 and R6? $6 + 6$ | 3. <u>12Ω</u> |
| 4. What resistance would a multimeter measure from B to D? $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ | 4. <u>4Ω</u> |
| 5. What is the equivalent resistance of R5, R6, R7, R8, R9 and R10? | 5. <u>32 4Ω</u> |
| 6. What resistance would a multimeter measure if placed across B and E? $\frac{1}{6} + \frac{1}{6}$
<i>Think carefully about this one!</i> | 6. <u>3Ω</u> ← $\frac{1}{36} \frac{1}{36}$ |
| 7. What is the total resistance of the circuit (from A to F)? $4.5 + 3 + 1.5$ | 7. <u>9Ω</u> |
| 8. What is the total current in the circuit? $54V / 9Ω$ | 8. <u>6A</u> |
| 9. What is the potential (voltage) drop across R1? $6A \times 4.5$ | 9. <u>27V</u> |
| 10. What is the potential drop from B to E? $3Ω \times 6$ | 10. <u>18V</u> |
| 11. How much current passes through R2? $6.0A$ split in 2 | 11. <u>3.0A</u> |
| 12. What is the potential drop across R3? $1.5A \times 6Ω = 9V$ | 12. <u>9.0V</u> |
| 13. What is the current in R4? $3A$ split evenly | 13. <u>1.5A</u> |
| 14. How much current passes through R11? $\frac{1}{2}$ of total | 14. <u>3.0A</u> |
| 15. What is the voltage drop from B to D? $4Ω \times 3A$ | 15. <u>12V</u> |
| 16. What is the voltage drop across R11? $3A \times 2Ω$ | 16. <u>6V</u> |
| 17. What is the current in <u>each branch</u> of the circuit from B to D? $3A$ split 3 ways | 17. <u>1.0A</u> |
| 18. What is the sum of potential drops across R9 and R10? $1A (12Ω)$ | 18. <u>12V</u> |
| 19. What is the potential drop across R7? $1A \times 8Ω$ | 19. <u>8V</u> |
| 20. Find the sum of the potential drops from A to B, B to E, and E to F. | 20. <u>54V</u> |
| 21. What is the sum of all currents flowing from B to E? | 21. <u>6A</u> |