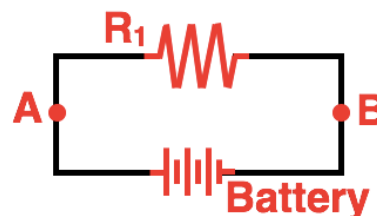


$\Delta V = I \cdot R$ Calculations for Series Circuits

Activity 1: Apprentice Difficulty Level

Question 1:

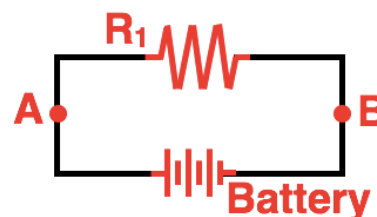
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) |
|---|---------------------|-------------------------------|-------------------------|-------------------------|
| A | 12.0 | 3.0 | | |
| B | 12.0 | 4.0 | | |
| C | | 3.0 | | 6.0 |
| D | 12.0 | | 0.5 | |
| E | 24.0 | | | 1.5 |

Question 2:

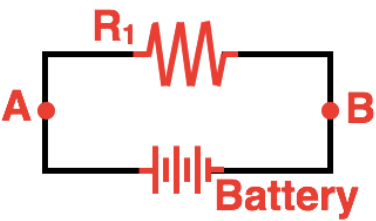
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) |
|---|---------------------|-------------------------------|-------------------------|-------------------------|
| A | 18.0 | 6.0 | | |
| B | 18.0 | 9.0 | | |
| C | | 4.0 | | 3.0 |
| D | 18.0 | | 1.5 | |
| E | 12.0 | | | 0.5 |

Question 3:

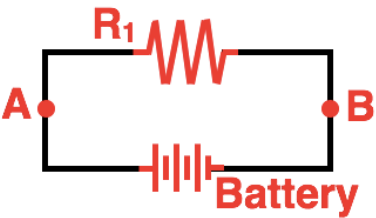
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) |
|---|------------------------|----------------------------------|----------------------------|----------------------------|
| A | 24.0 | 6.0 | | |
| B | 24.0 | 8.0 | | |
| C | | 2.0 | | 4.5 |
| D | 6.0 | | 0.5 | |
| E | 6.0 | | | 1.5 |

Question 4:

Complete the table based on the circuit diagram shown at the right.

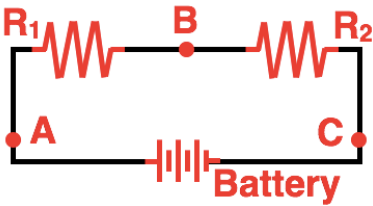


| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) |
|---|------------------------|----------------------------------|----------------------------|----------------------------|
| A | 6.0 | 3.0 | | |
| B | 6.0 | 4.0 | | |
| C | | 3.0 | | 4.0 |
| D | 12.0 | | 0.5 | |
| E | 24.0 | | | 1.5 |

Activity 2: Master Difficulty Level

Question 5:

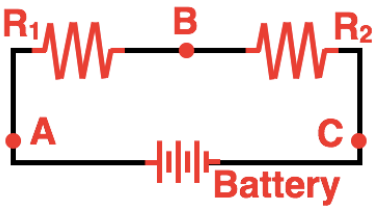
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Resistor 2 R_2 (Ω) | R_{eq} (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) | Current @C I_C (Amps) |
|---|------------------------|----------------------------------|----------------------------------|--------------------------|----------------------------|----------------------------|----------------------------|
| A | 12.0 | 3.0 | 3.0 | | | | |
| B | 12.0 | 4.0 | 2.0 | | | | |
| C | 12.0 | 1.0 | | 3.0 | | | |
| D | 12.0 | | 2.0 | | | | 1.5 |
| E | 24.0 | 12.0 | | | 1.5 | | |
| F | 18.0 | | 24.0 | 36.0 | | | |

Question 6:

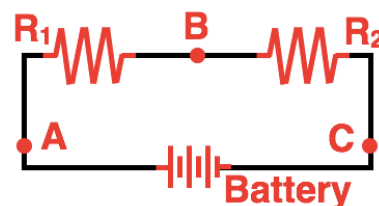
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Resistor 2 R_2 (Ω) | R_{eq} (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) | Current @C I_C (Amps) |
|---|------------------------|----------------------------------|----------------------------------|--------------------------|----------------------------|----------------------------|----------------------------|
| A | 6.0 | 1.5 | 1.5 | | | | |
| B | 6.0 | 1.0 | 2.0 | | | | |
| C | 6.0 | 0.5 | | 1.5 | | | |
| D | 6.0 | | 1.0 | | | | 1.5 |
| E | 12.0 | 6.0 | | | 1.5 | | |
| F | 9.0 | | 12.0 | 18.0 | | | |

Question 7:

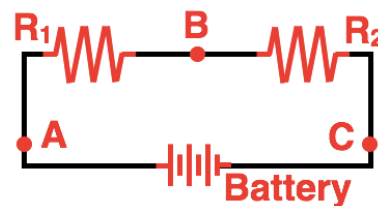
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Resistor 2 R_2 (Ω) | R_{eq} (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) | Current @C I_C (Amps) |
|---|---------------------|----------------------------------|----------------------------------|-----------------------|----------------------------|----------------------------|----------------------------|
| A | 18.0 | 4.5 | 4.5 | | | | |
| B | 18.0 | 3.0 | 6.0 | | | | |
| C | 18.0 | 2.0 | | 6.0 | | | |
| D | 18.0 | | 4.0 | | | | 1.5 |
| E | 24.0 | 12.0 | | | 1.5 | | |
| F | 6.0 | | 8.0 | 12.0 | | | |

Question 8:

Complete the table based on the circuit diagram shown at the right.

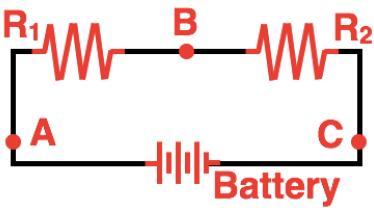


| | Battery Voltage (V) | Resistor 1 R_1 (Ω) | Resistor 2 R_2 (Ω) | R_{eq} (Ω) | Current @A I_A (Amps) | Current @B I_B (Amps) | Current @C I_C (Amps) |
|---|---------------------|----------------------------------|----------------------------------|-----------------------|----------------------------|----------------------------|----------------------------|
| A | 24.0 | 6.0 | 6.0 | | | | |
| B | 24.0 | 4.0 | 8.0 | | | | |
| C | 24.0 | 2.0 | | 6.0 | | | |
| D | 24.0 | | 6.0 | | | | 1.5 |
| E | 12.0 | 6.0 | | | 1.5 | | |
| F | 6.0 | | 8.0 | 12.0 | | | |

Activity 3: Wizard Difficulty Level

Question 9:

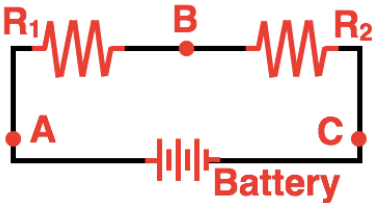
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R ₁ (Ω) | Resistor 2 R ₂ (Ω) | R _{eq} (Ω) | Current @A I _A (Amps) | Current @C I _C (Amps) | Potential @B V _B (V) |
|---|------------------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| A | 12.0 | 2.0 | 4.0 | | | | |
| B | 12.0 | 4.0 | | 8.0 | | | |
| C | 12.0 | 3.0 | | | 2.0 | | |
| D | 12.0 | 8.0 | | | | 0.5 | |
| E | 18.0 | | | | 2.0 | | 6.0 |
| F | 24.0 | 3.0 | | | | | 18.0 |

Question 10:

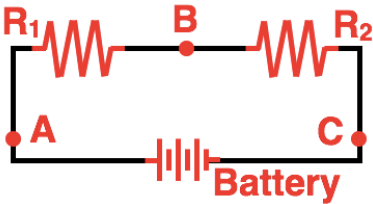
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R ₁ (Ω) | Resistor 2 R ₂ (Ω) | R _{eq} (Ω) | Current @A I _A (Amps) | Current @C I _C (Amps) | Potential @B V _B (V) |
|---|------------------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| A | 24.0 | 4.0 | 8.0 | | | | |
| B | 24.0 | 8.0 | | 16.0 | | | |
| C | 24.0 | 6.0 | | | 2.0 | | |
| D | 24.0 | 16.0 | | | | 0.5 | |
| E | 36.0 | | | | 2.0 | | 12.0 |
| F | 48.0 | 6.0 | | | | | 36.0 |

Question 11:

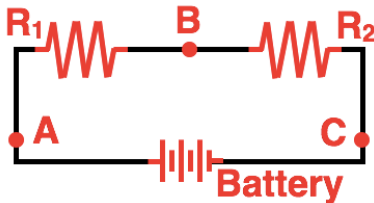
Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R ₁ (Ω) | Resistor 2 R ₂ (Ω) | R _{eq} (Ω) | Current @A I _A (Amps) | Current @C I _C (Amps) | Potential @B V _B (V) |
|---|------------------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| A | 24.0 | 2.0 | 4.0 | | | | |
| B | 24.0 | 4.0 | | 8.0 | | | |
| C | 24.0 | 6.0 | | | 2.0 | | |
| D | 24.0 | 8.0 | | | | 2.0 | |
| E | 18.0 | | | | 2.0 | | 6.0 |
| F | 12.0 | 2.0 | | | | | 9.0 |

Question 12:

Complete the table based on the circuit diagram shown at the right.



| | Battery Voltage (V) | Resistor 1 R ₁ (Ω) | Resistor 2 R ₂ (Ω) | R _{eq} (Ω) | Current @A I _A (Amps) | Current @C I _C (Amps) | Potential @B V _B (V) |
|---|------------------------|----------------------------------|----------------------------------|------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| A | 36.0 | 6.0 | 3.0 | | | | |
| B | 36.0 | 6.0 | | 12.0 | | | |
| C | 36.0 | 9.0 | | | 2.0 | | |
| D | 36.0 | 12.0 | | | | 2.0 | |
| E | 24.0 | | | | 2.0 | | 8.0 |
| F | 12.0 | 2.0 | | | | | 9.0 |