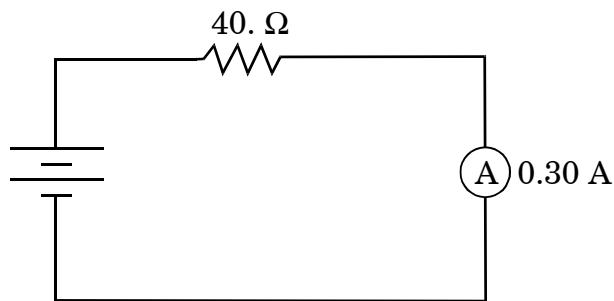


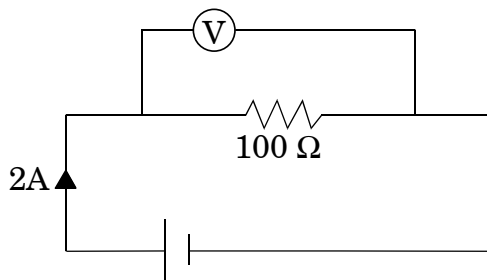
1. Consider this diagram:



What is the potential difference across the  $40. \Omega$  resistor in the circuit above?

- A  $7.5 \times 10^{-3} V$
- B  $12 V$
- C  $120 V$
- D  $130 V$

- 
2. Consider this diagram:

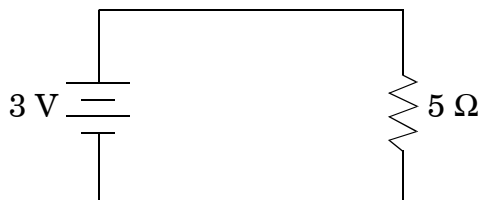


What voltage will be recorded by the voltmeter in the circuit above?

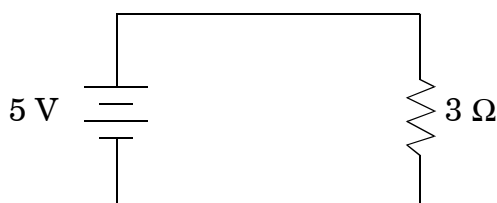
- A  $50 V$
- B  $100 V$
- C  $200 V$
- D  $400 V$

3. A simple series circuit consists of a battery and resistor. Which battery and resistor combination will give the greatest current in the circuit?

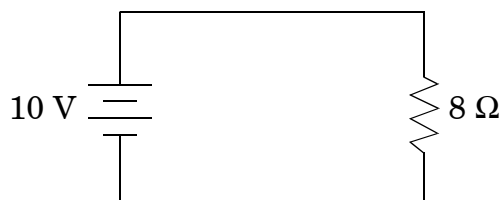
A



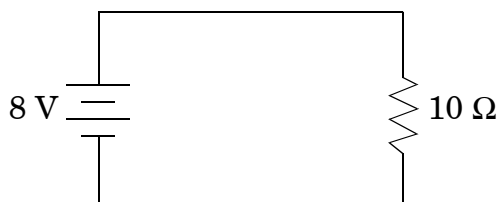
B



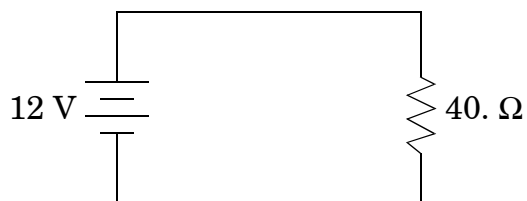
C



D



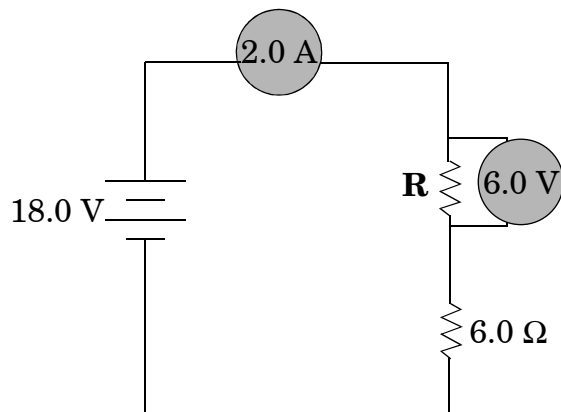
4. A 40.-Ω resistor is attached to a 12-volt battery as shown below.



How many coulombs of charge pass through the resistor in 5.0 minutes?

- A 0.30 C  
 B 1.5 C  
 C 60. C  
 D 90. C
5. A circuit has 3 identical resistors in series attached to a battery. When one of the resistors is removed and the circuit is reconnected, which of the following will occur?
- A The total resistance and the total current decrease.  
 B The total resistance decreases, and the total current increases.  
 C The total resistance increases, and the total current decreases.  
 D The total resistance and the total current increase.

6. Consider this diagram:

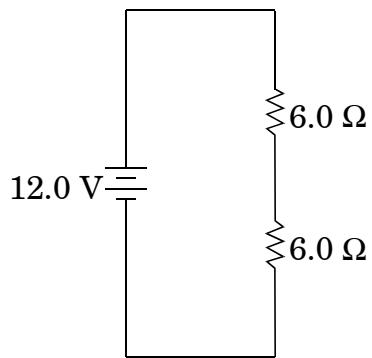


What resistance, **R**, will result in the current and voltage measurements shown?

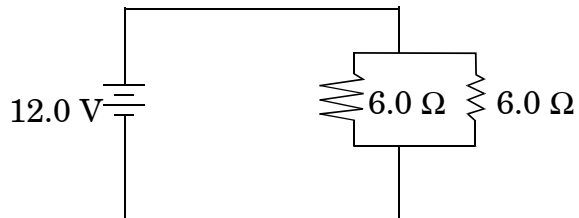
- A 0.33 Ω
  - B 3.0 Ω
  - C 6.0 Ω
  - D 12 Ω
- 
7. Three different resistors are connected in parallel in a circuit containing a battery. Which statement is true for each resistor?
- A The current through each is the same.
  - B The power used in each is the same.
  - C The voltage across each is the same.
  - D The capacitance of each is the same.

8. The circuit in which of the following diagrams would have the ***greatest*** current?

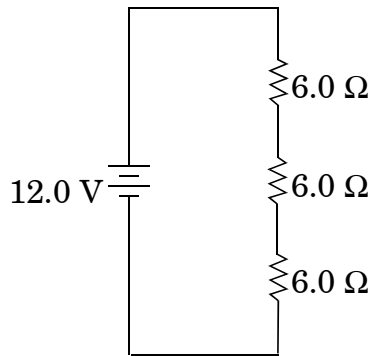
A



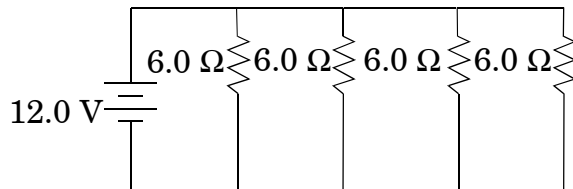
B



C



D



9. A light bulb is connected across a 6.0-V potential difference. The current in the circuit is measured at 0.75 A. What is the power rating of the light bulb?
- A 1.3 W  
B 4.5 W  
C 6.8 W  
D 8.0 W
10. A 120.-V heater draws 12.0 A of current. What is the power rating of the heater?
- A 10.0 W  
B 132 W  
C 1,440 W  
D 17,300 W

11. Ten volts are applied across a 100- $\Omega$  resistor. How many watts are dissipated by the resistor?
- A 1 W  
B 10 W  
C 100 W  
D 1,000 W

### **End of Goal 10 Sample Items**

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## Answers to EOC Physics Sample Items

### Goal 10

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**1. Objective 10.01**

Analyze and measure the relationship among potential difference, current, and resistance in a direct current circuit.

**Thinking Skill:** Analyzing

**Correct Answer:** B

**2. Objective 10.01**

Analyze and measure the relationship among potential difference, current, and resistance in a direct current circuit.

**Thinking Skill:** Analyzing

**Correct Answer:** C

**3. Objective 10.01**

Analyze and measure the relationship among potential difference, current, and resistance in a direct current circuit.

**Thinking Skill:** Generating

**Correct Answer:** B

**4. Objective 10.01**

Analyze and measure the relationship among potential difference, current, and resistance in a direct current circuit.

**Thinking Skill:** Analyzing

**Correct Answer:** D

**5. Objective 10.02**

Analyze and measure the relationship among current, voltage, and resistance in series and parallel circuits.

**Thinking Skill:** Generating

**Correct Answer:** B

**6. Objective 10.02**

Analyze and measure the relationship among current, voltage, and resistance in series and parallel circuits.

**Thinking Skill:** Analyzing

**Correct Answer:** B

**7. Objective 10.02**

Analyze and measure the relationship among current, voltage, and resistance in series and parallel circuits.

**Thinking Skill:** Integrating

**Correct Answer:** C

**8. Objective 10.02**

Analyze and measure the relationship among current, voltage, and resistance in series and parallel circuits.

**Thinking Skill:** Generating

**Correct Answer:** D

## Answers to EOC Physics Sample Items

### Goal 10

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**9. Objective 10.03**

Analyze and measure the nature of power in an electrical circuit.

**Thinking Skill:** Applying                      **Correct Answer:** B

**10. Objective 10.03**

Analyze and measure the nature of power in an electrical circuit.

**Thinking Skill:** Applying                      **Correct Answer:** C

**11. Objective 10.03**

Analyze and measure the nature of power in an electrical circuit.

**Thinking Skill:** Applying                      **Correct Answer:** A