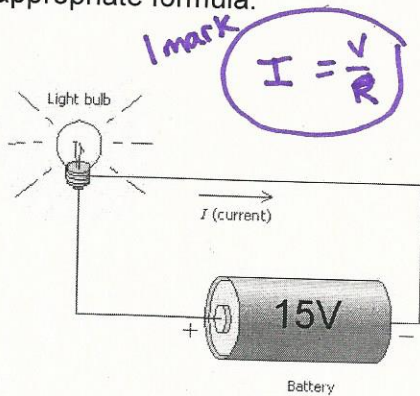


PSC-4111 Quiz#2

Name: Shannon

Date:

1. If the 15-V battery in the circuit below is replaced with a 9-V battery, then how will this affect the current intensity supplied to the bulb? Explain using the appropriate formula.



1 mark $I = \frac{V}{R}$

15-V → 9-V
Before (B) After (A)

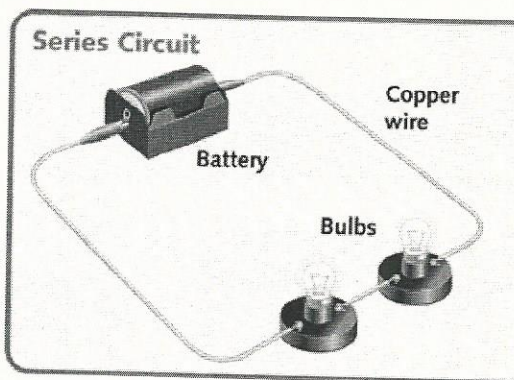
$$\frac{A}{B} = \frac{9 \div 3}{15 \div 3} = \frac{3}{5}$$

$V \downarrow \frac{3}{5} X$

$\therefore I \downarrow \frac{3}{5} X$
1 mark 1 mark

The current will be reduced by a factor of $\frac{3}{5}$ ($\frac{3}{5}$ times).

2. If one of the lightbulbs in the following circuit is removed (thus halving the resistance), how will the intensity of the current in the circuit be affected? Explain using the appropriate formula.



$I = \frac{V}{R}$ 1 mark

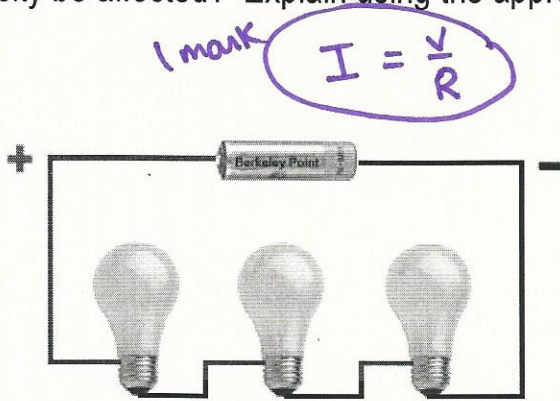
$R \downarrow \frac{1}{2} X$

$\therefore I \uparrow 2 X$

2 marks

The current will be increased by two times (doubled).

3. If the 1.5V cell in the circuit below is replaced with a 9V battery, how will the current intensity be affected? Explain using the appropriate formula.



1.5V → 9V
Before (B) After (A) $\frac{A}{B} = \frac{9}{1.5} = 6$

$V \uparrow 6X$

$\therefore I \uparrow 6X$
2 marks

4. How does the current intensity in diagram B compare with the current intensity in diagram A below? Explain using the appropriate formula.

Diagram A

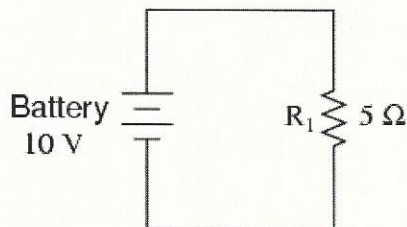
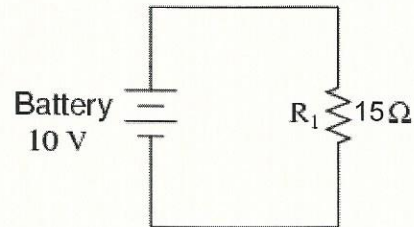


Diagram B



→ Same voltage but Resistance is 3 times greater in Diagram B.

$$I = \frac{V}{R} \quad R \uparrow 3X \quad \therefore I \downarrow \frac{1}{3}X$$

The current will be $\frac{1}{3}X$ less in the circuit in Diagram B.