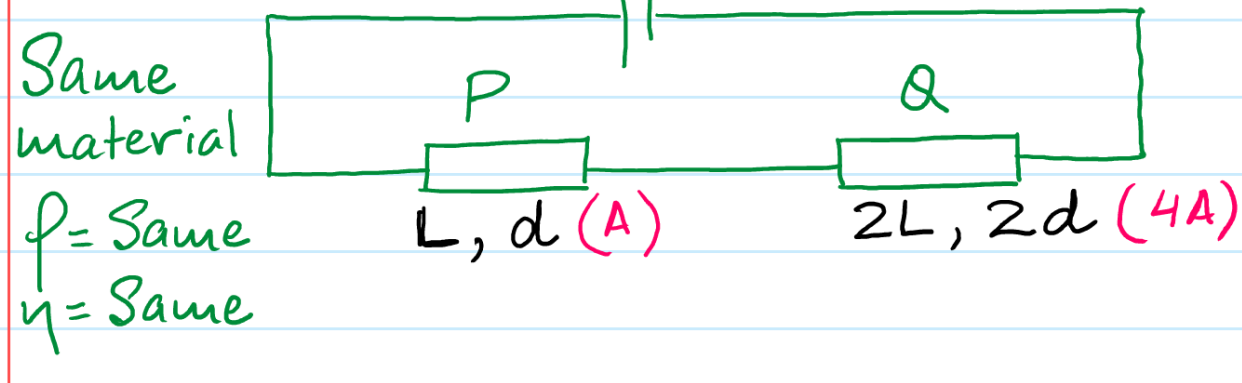


Slide (3)

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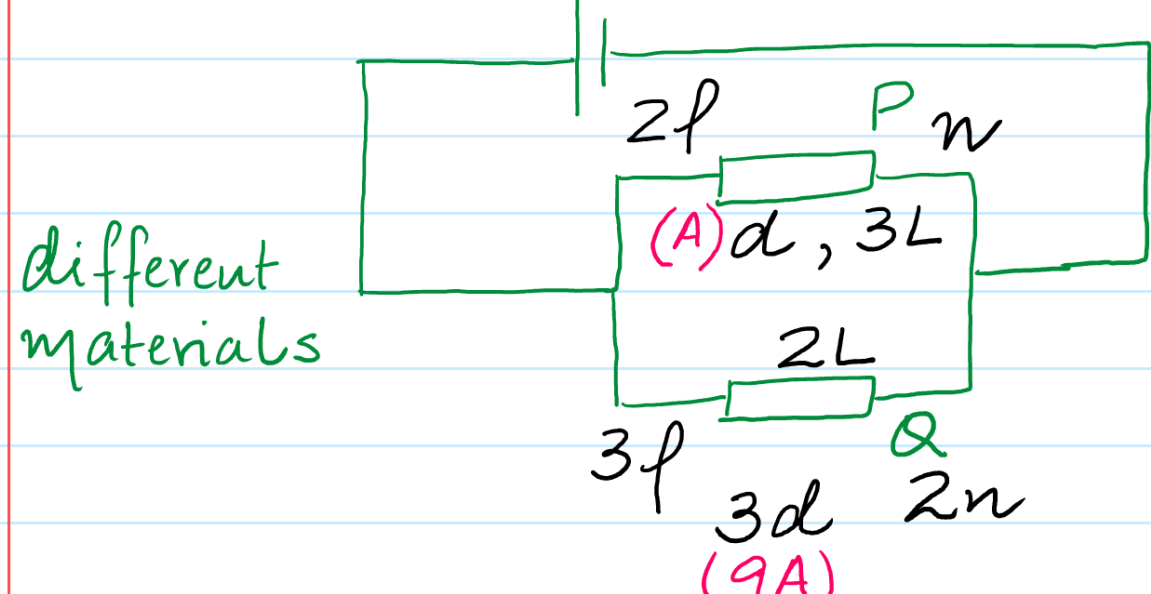
Ex. 2 How to compare drift velocity in a Series Circuit



Cal ratio of

$$\frac{V_P}{V_Q} = \frac{\cancel{n} \frac{I}{A} \cancel{e}}{\cancel{n} \frac{I}{4A} \cancel{e}} = \frac{4}{1} \text{ Ans.}$$

Ex. 3 Compare drift velocity in a Parallel combination



(i) Ratio of

$$(a) \frac{R_P}{R_Q} = \frac{2L \cdot \frac{\rho}{A}}{2L \cdot \frac{\rho}{9A}} = \frac{9}{1} \text{ Ans}$$

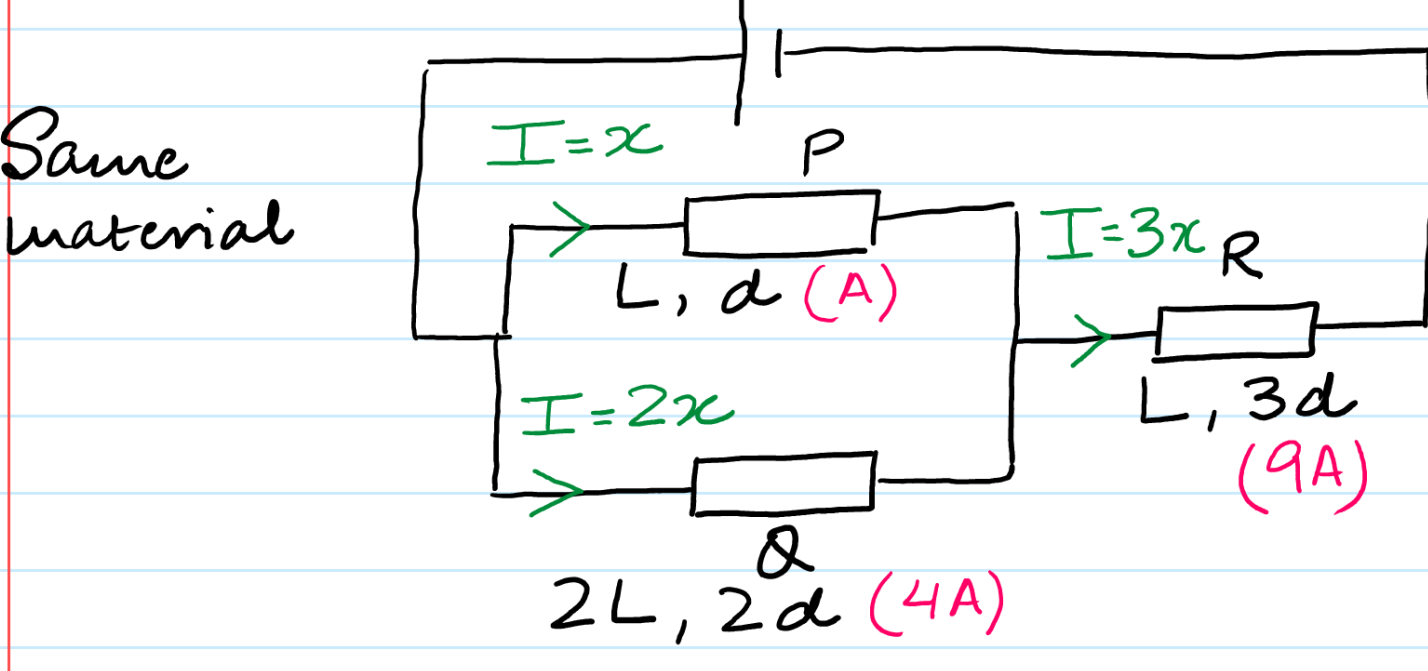
$$(c) \frac{V_P}{V_Q} = \frac{n \frac{I}{A} e}{2n \frac{9I}{9A} e} = \frac{1}{1} \text{ Ans}$$

$$\frac{R_P}{R_Q} = \frac{6}{1} \times \frac{9}{6} = \frac{9}{1} \text{ Ans} \quad \frac{V_P}{V_Q} = \frac{2}{1} \text{ Ans}$$

$$(b) \frac{I_P}{I_Q} = \frac{1}{9}$$

Ex. 4

Compare drift velocity in Series & parallel circuits



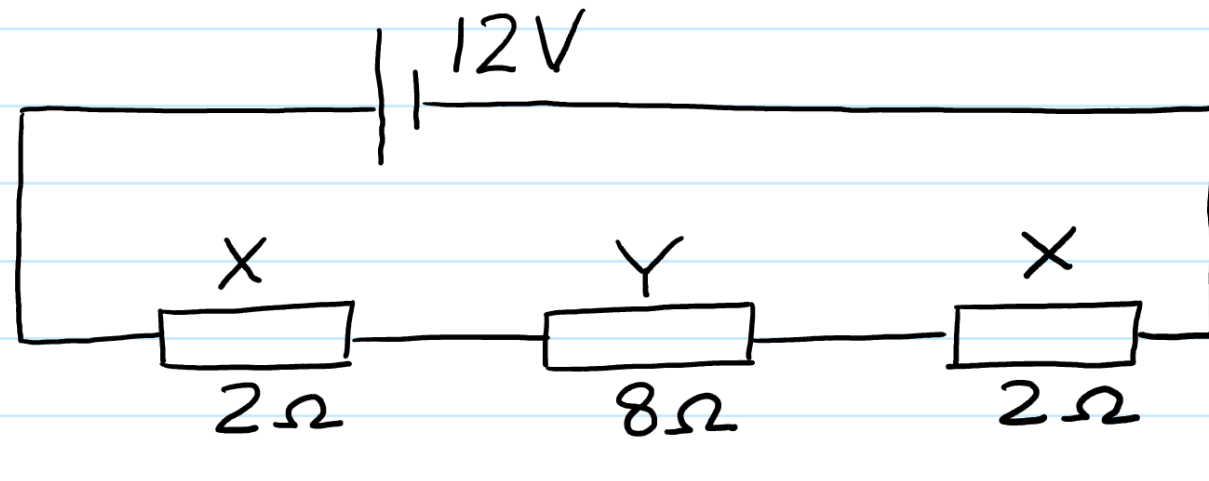
$$(i) \frac{R_P}{R_Q} = \frac{\rho \cdot L}{A} = \frac{2}{1} \text{ Ans.}$$

$$(iii) \frac{V_Q}{V_R} = \frac{n \frac{2xI}{4A} e}{n \frac{3xI}{9A} e} = \frac{3}{2} \text{ Ans}$$

$$(ii) \frac{I_P}{I_Q} = \frac{1}{2}$$

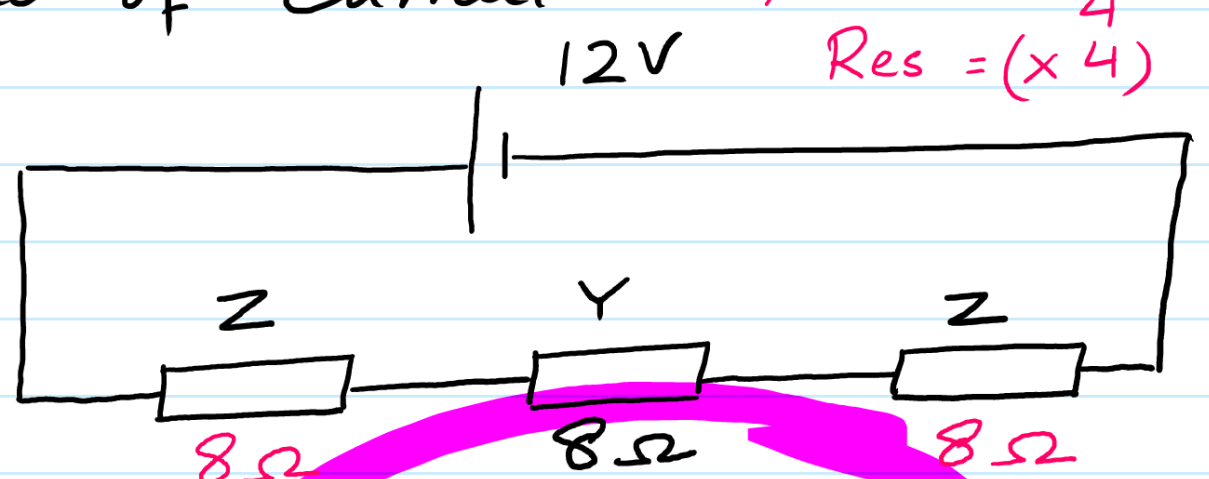
$$\frac{V_Q}{V_P} = \frac{3}{2} \text{ Ans}$$

Ex. 5 How to compare drift velocity in a Series Circuit whose Resistance is changed



Cal Current in Circuit
 $V = IR \quad 12 = I(12) \quad I = 1A$

Both Resistors X are replaced with Two identical Resistors Z made of same material as X but having half the diameter. Cal new value of Current



$V = IR \quad 12 = I(24) \quad \therefore I = 0.5A$

* Compare drift velocity in Z with drift velocity in X ?

$$\frac{V_Z}{V_X} = \frac{0.5I}{1I} = \frac{2}{1} \text{ Ans.}$$

(Important)

* Theory Explain how the drift velocity in Z compares with drift velocity of X

$I = \text{half}$, Area = Quarter

Ans drift velocity in this case depends on two factors Current & Area.

Current = halved, Area = Quarter
 \therefore we can say that the change in Area **OUTWEIGHS** the change in Current.

$$v \propto \frac{1}{A} \therefore \text{as}$$

area of Z decreases; its drift velocity **increases**.