

- 6 (a) State **one** similarity and describe **one** difference between electromotive force (e.m.f.) and potential difference (p.d.).

similarity .....

difference .....

[3]

- (b) A cell of e.m.f. 1.5V is connected to a voltmeter and a network of resistors, as shown in Fig. 6.1.

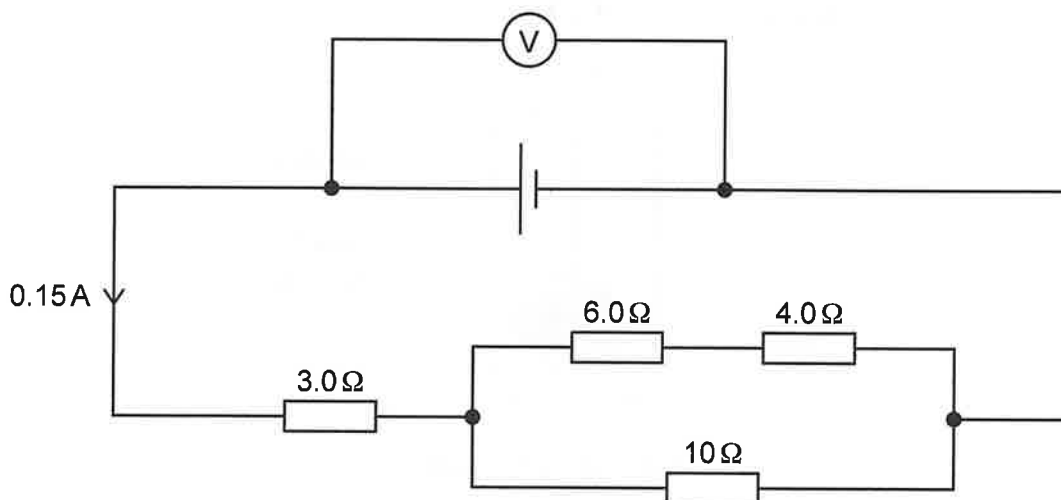


Fig. 6.1

The reading on the voltmeter is less than 1.5V.

The current in the resistor of resistance  $3.0\Omega$  is 0.15A.

- (i) Explain why the p.d. across the voltmeter is less than 1.5V.

.....  
 .....  
 .....

[2]

- (ii) Determine the reading on the voltmeter.

reading = ..... V [2]

- (c) The resistor of resistance  $4.0\ \Omega$  in Fig. 6.1 is now replaced with a resistor of resistance  $9.0\ \Omega$ , as shown in Fig. 6.2.

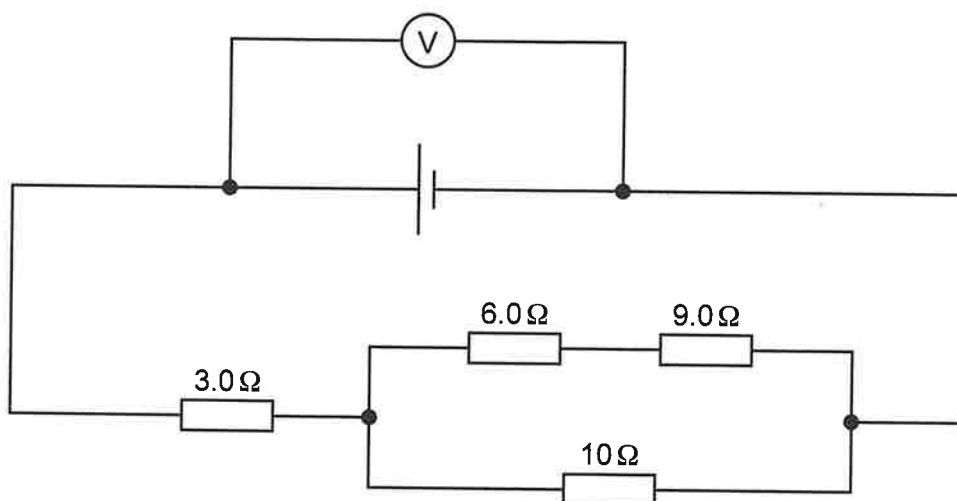


Fig. 6.2

- (i) Complete Table 6.1 by placing **one** tick (✓) in each row to indicate how the current in the cell and the reading on the voltmeter are affected by this change.

Table 6.1

	increases	decreases	remains the same
current in cell			
reading on voltmeter			

[2]



(ii) Determine the p.d. across the resistor of resistance  $10\ \Omega$ .

p.d. = ..... V [4]

[Total: 13]