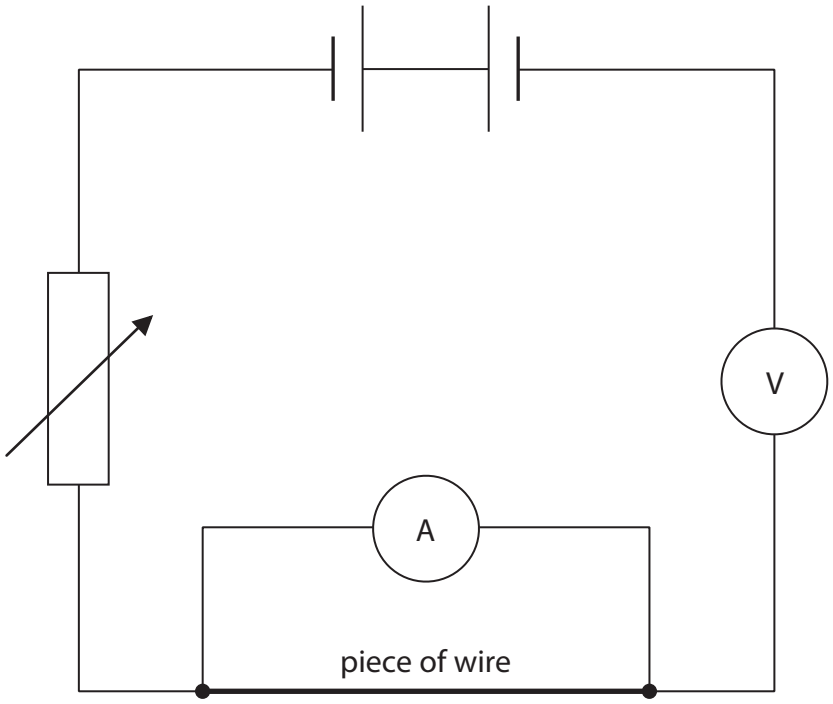
10 A student plans to measure the resistance of a piece of wire.

He sets up this circuit and finds that it does not work.



(a) Identify the three errors in the student's circuit.

(3)

1 .....

.....

2 .....

.....

3 .....

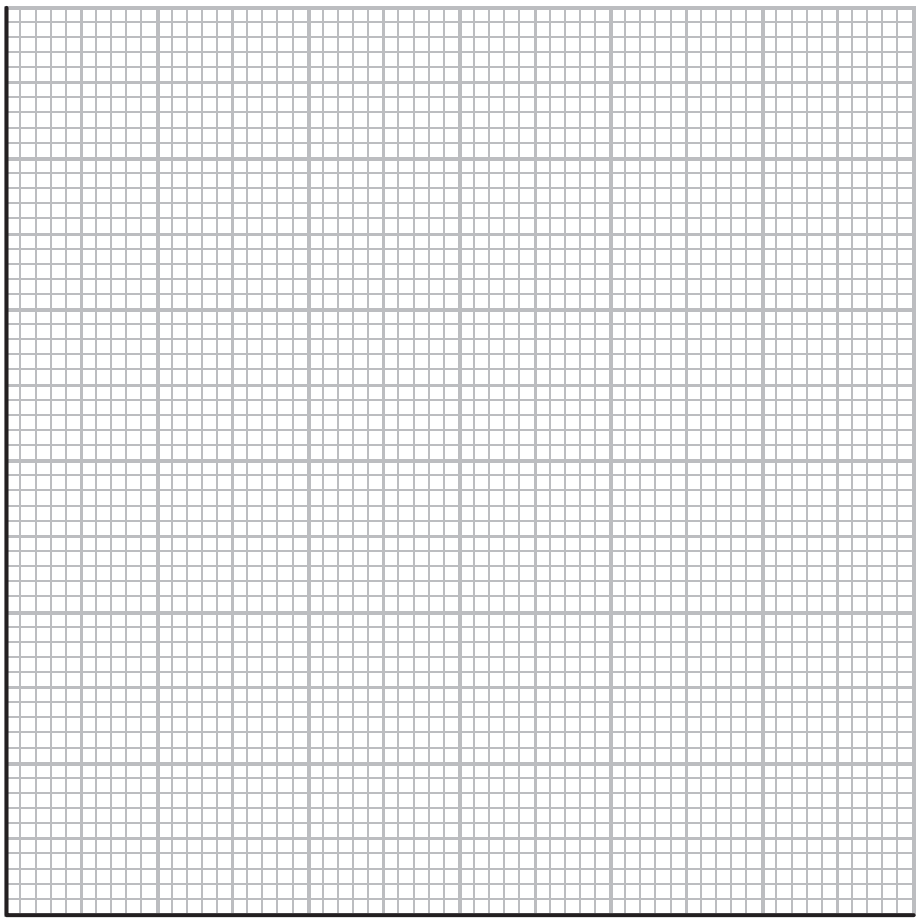
.....

(b) The student uses a correct circuit to obtain these results.

Current in amps	Voltage in volts
0.00	0.0
0.24	1.5
0.71	4.5
0.89	6.0
1.00	7.5
1.10	9.0

(i) Plot a graph to show the relationship between current and voltage for the wire.

(5)



(ii) Find the current when the voltage is 2.5 V.

(1)

(iii) Suggest why the line on the graph curves.

(1)

(iv) Describe what else the student should do to find an accurate value for the resistance of the piece of wire at a constant temperature.

(4)

(Total for Question 10 = 14 marks)