6 In the circuit shown in Fig. 6.1, cell A has a constant e.m.f. of 2.0 V and negligible internal resistance. Wire XY is 100 cm long with a resistance of 5.0 Ω. Cell B has an e.m.f. of 1.5 V and an internal resistance of 0.80 Ω.

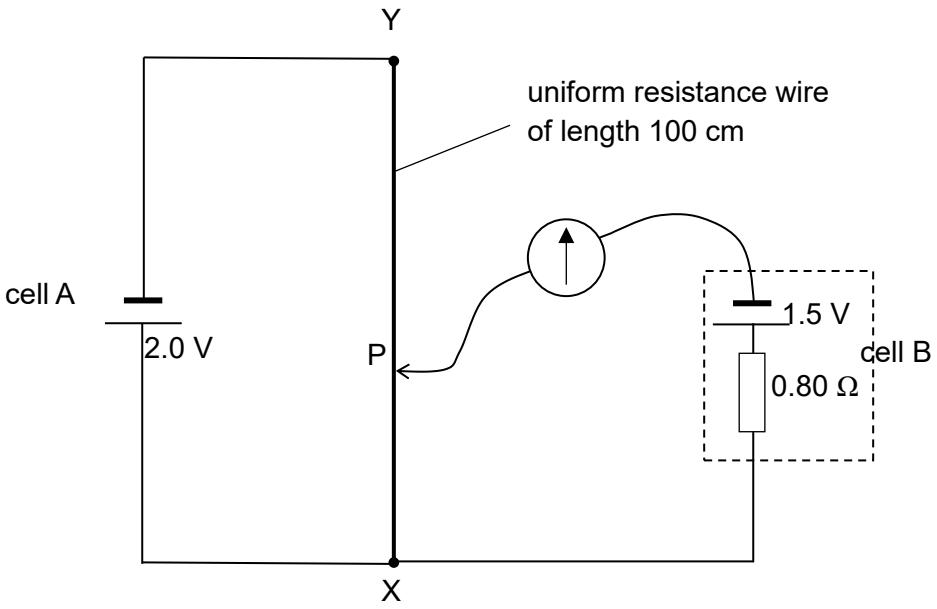

Fig. 6.1

Calculate the length XP to produce zero current in the galvanometer

(a) in the circuit as shown in Fig. 6.1,

XP = …… cm [2]

(b) when a 1.0 Ω resistor is placed in series with cell A,

XP = …… cm [3]

(c) when the 1.0 Ω resistor in **(b)** is removed from A and placed in parallel with cell B.

XP = …….. cm [3]