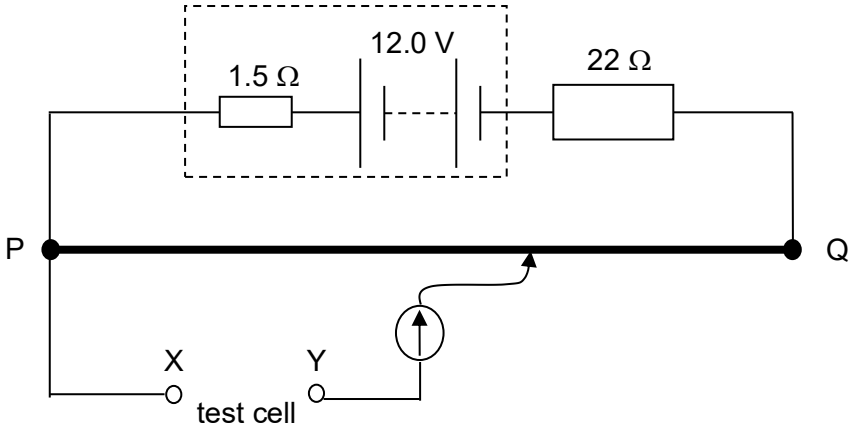
23 A student attempts to measure the e.m.f. of a test cell using a potentiometer circuit as shown below.



The wire PQ has a resistance of 3.0 Ω and the driver cell has an e.m.f. of 12.0 V and internal resistance of 1.5 Ω. He was unable to obtain an observable balance length on PQ when he connected the circuit. The tutor he consulted told him that the test cell has an e.m.f. of a few millivolts.

What could he do in order to obtain an observable balance length?

A Use a driver cell of e.m.f. 20 V.

B Reverse the polarity of the test cell at XY.

C Change the wire PQ to a wire of resistance 20 Ω.

D Change the resistance of the connected resistor to 1 kΩ.