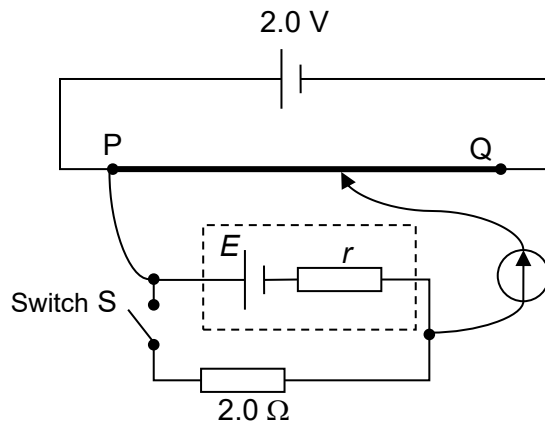


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The diagram below shows a potentiometer circuit used to determine the internal resistance r of a cell of e.m.f. E . The driver cell has an e.m.f. of 2.0 V with negligible internal resistance and the resistance wire PQ is 1.0 m long. The cell is connected in parallel with a resistor of $2.0\ \Omega$. When the switch is open, the balance length is 0.70 m and when the switch is closed, the balance length is 0.50 m .

What is the value of r ?



A

$0.15\ \Omega$

B

$0.40\ \Omega$

C

$0.50\ \Omega$

D

$0.80\ \Omega$

