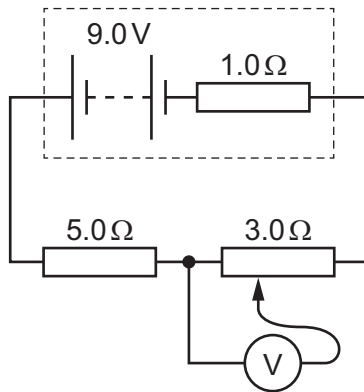


- 38** A battery of electromotive force (e.m.f.)  $9.0\text{ V}$  and internal resistance  $1.0\ \Omega$  is connected to a fixed resistor of resistance  $5.0\ \Omega$  and a potentiometer of maximum resistance  $3.0\ \Omega$ , as shown.



The sliding contact of the potentiometer is moved over its full range of movement.

What is the maximum value of the potential difference that is measured by the voltmeter?

- A**  $3.0\text{ V}$                       **B**  $3.4\text{ V}$                       **C**  $4.5\text{ V}$                       **D**  $5.4\text{ V}$