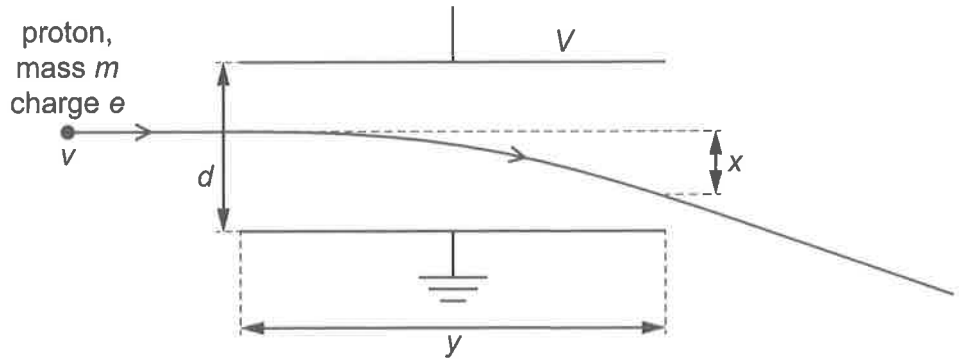
19 A proton, of mass m, charge e and velocity v, enters a uniform electric field between two parallel plates at right angles to the field. The region between the plates is a vacuum.

The length of the plates is y, the separation of the plates is d and the potential difference across the plates is V.



The vertical deflection of the proton is x at the point where it leaves the region between the plates.

Which equation for x is correct?

A $x = \frac{eVy^2}{2mdv^2}$ **B** $x = \frac{2mdv^2}{eVy^2}$ **C** $x = \frac{eVv^2}{2mdy^2}$ **D** $x = \frac{mdy^2}{2eVv^2}$