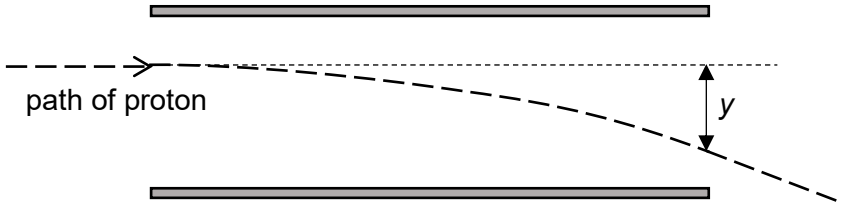
20 A proton of mass m travels through a uniform electric field of field strength E between two horizontal charged plates. It enters the field horizontally with speed v, travels a vertical displacement y, and leaves the field as shown below.



What will be the speed of the proton after it leaves the field?

A $v - \sqrt{\frac{2Eey}{m}}$ **B** $v + \sqrt{\frac{2Eey}{m}}$ **C** $\sqrt{v^2 - \frac{2Eey}{m}}$ **D** $\sqrt{v^2 + \frac{2Eey}{m}}$