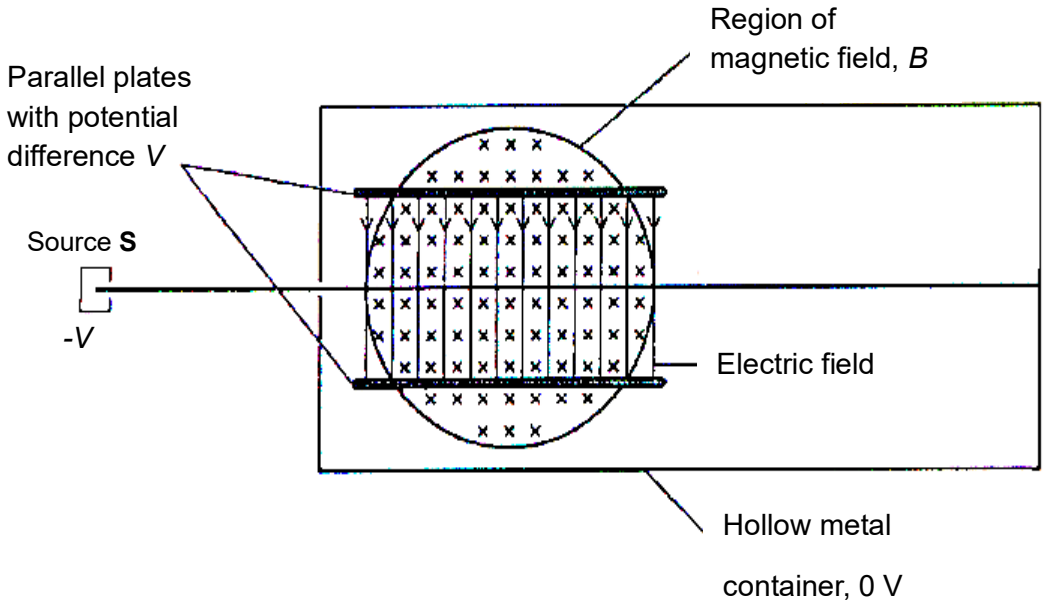
24 A part of a mass spectrometer is shown in the figure below. Negative ions are generated at the source **S** with negligible speed, which is at a potential of $-V$ with respect to the hollow metal container. Inside the container, there are parallel plates separated by distance d and a uniform magnetic field B is applied to the region between the parallel plates.



If the potential difference between the parallel plates is V, what is the charge to mass ratio of the ions that can pass through the fields undeviated?

A $\frac{V}{2B^2d^2}$ **B** $\frac{2V}{B^2d^2}$ **C** $\frac{2B^2d^2}{V}$ **D** $\frac{B^2d^2}{2V}$