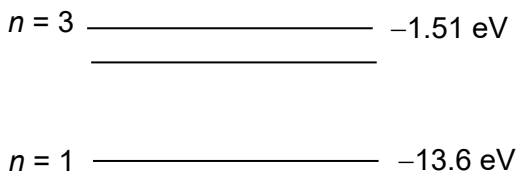
29 The diagram below shows three energy levels of a hydrogen atom, with the values of the first and third levels given.



A hydrogen atom absorbs a photon of wavelength λ such that the electron in the ground state is brought to an excited level of $n = 3$.

What is the maximum wavelength of a photon that can cause ionisation of a hydrogen atom in the ground state?

A $\frac{2}{3}\lambda$

B $\frac{8}{9}\lambda$

C $\frac{9}{8}\lambda$

D $\frac{3}{2}\lambda$