

38 A stationary nucleus has nucleon number A .

The nucleus decays by emitting a proton with speed v to form a new nucleus with speed u . The new nucleus and the proton move away from one another in opposite directions.

Which equation gives v in terms of A and u ?

A $v = \left(\frac{A}{4} - 1\right)u$

B $v = (A - 1)u$

C $v = Au$

D $v = (A + 1)u$