

## R. Knight 9.51

A proton (mass 1 u) is shot toward an unknown target nucleus at a speed of  $2.5 \times 10^6$  m/s. The proton rebounds with its speed reduced by 25%, while the target nucleus acquires a speed of  $3.12 \times 10^5$  m/s.

What is the mass of the target nucleus (in atomic mass units u)?