

Table for use in solving problems:

	Mass (kg)	Mass (u)	Mass (MeV/c ²)
Electron	$9.109\ 39 \times 10^{-31}$	0.000 548 579	0.510 999
Proton	$1.672\ 62 \times 10^{-27}$	1.007 276	938.272
Neutron	$1.674\ 93 \times 10^{-27}$	1.008 665	939.566
³ H atom	$1.673\ 53 \times 10^{-27}$	1.007 825	938.783
α particle (⁴ He nucleus)	$6.644\ 66 \times 10^{-27}$	4.001 506	3727.38
¹² C atom	$1.992\ 65 \times 10^{-26}$	12	11 177.9
Unified mass unit (u)	$1.660\ 54 \times 10^{-27}$	1	931.494

Problem covered in videos (3)-(4)

Tritium ${}^3_1\text{H}$ has a mass of 3.016049u. Consider that it decays into hydrogen and two neutrons. The mass of hydrogen is 1.007825u and the mass of a neutron is 1.008665u.

(a) Find the binding energy of tritium ${}^3_1\text{H}$ in eVs.

(b) It requires only 13.6eV to remove an electron from tritium. How does this value compare to the energy required to separate the nucleons of tritium. Explain.