

Q6. The mean life of meson is 2×10^{-8} sec. calculate the mean life of a meson moving with a velocity $0.8c$?

Given :- $t_0 = 2 \times 10^{-8}$; $v = 0.8c$

Formula:- $t = \frac{t_0}{\sqrt{1 - \frac{v^2}{c^2}}}$

Solution:- $t = \frac{2 \times 10^{-8}}{\sqrt{1 - (0.8)^2}} = 3.3 \times 10^{-8} \text{ sec}$

Ans:- The mean life is $3.3 \times 10^{-8} \text{ sec}$.