

The half-life of a radioactive nucleus is $1.5 \cdot 10^{-8}$ s. What is this half-life in milliseconds (ms), microseconds (μs), nanoseconds (ns), picoseconds (ps) and in minutes?

Answer: $1 \text{ ms} = 10^{-3} \text{ s}$; $1 \mu\text{s} = 10^{-6} \text{ s}$; $1 \text{ ns} = 10^{-9} \text{ s}$; $1 \text{ ps} = 10^{-12} \text{ s}$; $1 \text{ min} = 60 \text{ s}$, then

$T_{1/2} = 1.5 \cdot 10^{-8} \text{ s} = 1.5 \cdot 10^{-5} \text{ ms} = 0.015 \mu\text{s} = 15 \text{ ns} = 15,000 \text{ ps} = 1.5 \cdot 10^{-8} / 60 \text{ min} = 2.5 \cdot 10^{-10} \text{ min}$.