Answer on Question #65203 – Physics/Molecular physics - Thermodynamics

Question: A gamma ray with an energy of 3.40 × 10-14 joules strikes a photographic plate. We know that Planck's constant is 6.63 × 10-34 joule·seconds. What is the frequency of the photon?

Solution: The Planck's constant (h) links a photon's energy (E) and photon's frequency (f) by equation: $E = hf$, so $f = E/h = \frac{3.40*10^{-14}J}{6.63*10^{-34}J*s} = 0.513 * 10^{20}\ Hz$.

Answer: The frequency of the photon is 0.513*10²⁰ Hz.