Task #82075

A laser pulse with wavelength 530nm contains 4.85 mJ of energy. How many photons are in the laser pulse?

Solution.

To find the number of photons, it is necessary to write the photon energy equation:

E = h*c/L , where h - Planck's constant, c - light speed, L – wavelength

E = 6.62*10^-34 J/s * 3*10^8 m/s / 530*10^-9 m = 3.75 * 10^-37 J

The number of photons is equal to the ratio of photon energy to work:

N = A/E

N = 4.85*10^(-3) J /3.75*10^(-37) J = 1.29*10^34

Answer:

N = 4.85*10^(-3) J /3.75*10^(-37) J = 1.29*10^34