Answer on Question #73436, Chemistry / General Chemistry

Frequency: 7.68 × 10^{14} Hz

Wavelength: 390 nm

Photon Energy: 5.10 × 10^{-19} J

What is the value of this constant, in units of J s?

Answer:

The Einstein relation connects the particulate photon energy E with its associated wave frequency f:

$$E = h\nu$$

$$h = \frac{E}{\nu}$$

So, the value of the Planck constant is

$$h = \frac{5.10 \times 10^{-19} J}{7.68 \times 10^{14} 1/s} = 6.640625 \times 10^{-34} Js$$

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