Answer on the question #60145, Physics / Optics

Question:
how do i determine the energy of a photon with a save length of 3.5 x 10^-8 (negative 8) m? When C= 3.00 x 10^8 m/s H= 6.63 x 10^-34 J-s

Solution:
The relation between energy and wavelength is the following:

$$E = h\frac{c}{\lambda},$$

where h is the Planck's constant, c is the velocity of light and λ is the wavelength.

$$E = 6.63 \cdot 10^{-34}\ (J \cdot s) \cdot \frac{3 \cdot 10^{8}(m \cdot s^{-1})}{3.5 \cdot 10^{-8}(m)} = 5.69 \cdot 10^{-18} J$$

Answer: $5.69 \cdot 10^{-18}$ J