$p = \frac{h}{\lambda}$ (momentum of wave)

$\lambda = \frac{h}{mv}$ (wavelength of particle)

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$f = 5.09 \times 10^{14}\ Hz$

$p = ?$

$p = \frac{h}{\lambda}$

$p = \frac{h}{c/f}$

$p = \frac{hf}{c}$ $\quad kg \cdot \frac{m^2}{s^2} \cdot s$

$c = \lambda f$

$\lambda = \frac{c}{f}$

$p = \frac{(6.626 \times 10^{-34}\ J \cdot s)(5.09 \times 10^{14}\ s^{-1})}{3.00 \times 10^{8}\ m\ s^{-1}}$

$p = 1.12 \times 10^{-27}\ kg \cdot m/s$

$\lambda = \frac{3.00 \times 10^{8}\ m/s}{5.09 \times 10^{14}\ s^{-1}}$

$\lambda = 5.89 \times 10^{-7}\ m$

589 nm

≈ green?

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electron ($m = 9.11 \times 10^{-31}\ kg$)

$V = 6.39 \times 10^{6}\ m/s$

$\lambda = ?$

$\lambda = \frac{h}{mv}$

$\lambda = \frac{6.626 \times 10^{-34}\ J \cdot s}{(9.11 \times 10^{-31}\ kg)(6.39 \times 10^{6}\ m/s)}$

$\lambda = 1.14 \times 10^{-10}\ m$