P #27

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$\lambda = 700\ nm$

Find energy: $E = h \cdot f = \frac{h \cdot c}{\lambda}$

$$E = \frac{1240\ eV \cdot nm}{700\ nm}$$

$$\boxed{E = 1.77 eV}$$

Find momentum:

$$E = 1.77 eV \cdot \frac{1.6 \times 10^{-19} J}{1\ eV} = 2.83 \times 10^{-19}\ J$$

$$E = p \cdot c$$

$$(2.83 \times 10^{-19}\ J) = p \cdot (3 \times 10^{8}\ m/s)$$

$$\boxed{p = 9.45 \times 10^{-28}\ kg\,m/s}$$