P #6

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- Find E (per photon)

$\lambda = 589.3\ nm = 589.3 \times 10^{-9}\ m$

$$E = \frac{h \cdot c}{\lambda} = \frac{(1.99 \times 10^{-25}\ J \cdot m)}{(589.3 \times 10^{-9}\ m)}$$

$E = 3.38 \times 10^{-19}\ J$ (per photon)

Find # of photons w/ dimensional analysis

$$P = 1000\ W = \frac{1000\ J}{sec}$$

$$\frac{1000\ J/sec}{(3.38 \times 10^{-19}\ J/photon)} = \boxed{2.96 \times 10^{21}\ photon/sec}$$