

1) If the frequency of light is known to be 9.45×10^{14} Hz, what is the wavelength in meters?

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| A) 3.17×10^{-7} m | A. Correct, rearrange the formula $c = \lambda f$ to solve for wavelength, $\lambda = c/f$ |
| B) 3.15×10^6 m | B. Incorrect, this is $\lambda = f/c$ which is incorrect rearrangement of the formula |
| C) 2.85×10^{23} m | C. Incorrect, this is $\lambda = cf$ which is incorrect rearrangement of the formula |
| D) 6.26×10^{-19} | D. Incorrect, this is $\lambda = hf$ which is an incorrect formula |

Multiple Choice Item

2) What is the energy of a photon of light whose frequency is 7.85×10^{15} Hz?

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| A) 2.53×10^{-41} J | A. Incorrect, this is an incorrect use of the formula $E_{\text{photon}} = hc/\lambda$ |
| B) 3.82×10^{-8} J | B. Incorrect, this is an incorrect use of the formula $\lambda = c/f$, the problem is asking for energy not wavelength |
| C) 5.20×10^{-18} J | C. Correct, use the formula $E_{\text{photon}} = hf$ to solve for energy |
| D) 2.36×10^{24} J | D. Incorrect, this is an incorrect use of the formula $c = \lambda f$ |

Multiple Choice Item

3) If light has a wavelength of 5.50×10^{-7} m, what is the energy of one photon of this light?

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| A) 5.45×10^{14} J | A. Incorrect, this is an incorrect use of the formula $c = \lambda f$ which solves for frequency, not energy |
| B) 3.61×10^{-19} J | B. Correct, using the formula $E_{\text{photon}} = hc/\lambda$, plug the numbers in and calculate |
| C) 1.09×10^{-31} J | C. Incorrect, this is an incorrect use of the formula $E_{\text{photon}} = hc/\lambda$ |
| D) 3.64×10^{-40} J | D. Incorrect, this is an incorrect use of the formula $E_{\text{photon}} = hf$, you are given wavelength not frequency. |