

## 10.7: Problems

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1. A dye laser produces pulses of 15.0 mJ at a wavelength of 564 nm. How many photons are being produced per pulse?
  2. In the above problem, consider the optical gain medium occupying a volume of 1.00 mL. What is the minimum concentration (in mol/L) of chromophores needed to produce pulses of 15.0 mJ at 564 nm?
  3. Consider a two-level system, in which the difference in energy is 1.0 eV. If both levels are singly degenerate, calculate the fractional population of each level at 10 K, 100 K, and 1000 K.
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