(8pts) The scale below gives the period of a semiconductor/Air grating structure, where the semiconductor has a refractive index $n=4$. Label the regions on the scale corresponding to the different approaches we can take to analyzing grating structures. Assume we are considering light of $\lambda_0 = 1\, \mu\text{m}$, where $\lambda_0$ is the free-space wavelength of our light. There should be ~3-4 regions labeled.

\[ \frac{\lambda_0}{n} \approx 0.25 \, \mu\text{m} \]

(2pts) If I want to use this structure to make a mirror for a vertical-cavity laser, which region should I be designing in?

\[ \frac{\lambda_0}{4} < \lambda < \lambda_0 \]