<u>Quiz 27.2A</u>

Light of wavelength 632 nm travels through air and is then incident on a thin antireflective coating ($n_{film} = 1.62$) on top of a glass surface (n = 1.50).

Consider two light rays: Ray A reflects off the surface of the film. Ray B reflects off the surface of the glass and transmits back through the film outward in a direction parallel to ray A (our typical drawing for thin film reflection).

- a) Write down expressions for the phase shifts (in waves) experienced by ray A and ray B.
- b) Assuming we design the film so that it does not reflect light of wavelength 632 nm, what are the two smallest thicknesses that the film can have, in nm?