## Quiz 27.2A

Light of wavelength 632 nm travels through air and is then incident on a thin antireflective coating ( $n_{\text {film }}=1.62$ ) 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?

