Physics II

Anti-Reflex Coatings

Problem 1.- Calculate the minimum thickness of an antireflective coating that doesn't reflect any green light (533nm) if its index of refraction is 1.38 and covers a lens with n=1.52
Draw a diagram and explain the rationale of your answer.

Problem 1a.- Calculate the minimum thickness of an antireflective coating that doesn't reflect green light (533nm) if its index of refraction is 1.42 and covers a lens with n=1.52

Problem 2.- Why is that lenses that have an anti-reflecting coating look purple?

Problem 3.- What is the minimum possible thickness of a thin oil film floating on water that looks blue (main intensity at a wavelength=450nm) when illuminated with white light at an angle of incidence of 0º?
Index of refraction of oil = 1.47, index of refraction of water=1.33