1. Initially unpolarized light passes in turn through three linear polarizers with transmission axes at 0°, 30°, and 60°, respectively, relative to the horizontal. What is the intensity of the product light, expressed as a percentage of the unpolarized intensity?

2. What minimum thickness should a piece of quartz have to act as a quarter wave plate for a wavelength of 589.3 nm in a vacuum? The index of refraction of quartz in the two directions is 1.5534 and 1.5443, respectively.

3. In viewing the far-field diffraction pattern of a single slit illuminated by a discrete spectrum source with the help of absorption filters, one finds that the fifth maximum of one wavelength component coincides exactly with the fourth minimum of the pattern due to a wavelength of 620 nm. What is the other wavelength?