

Reading Assignment
Chapter 9 Sections 5 ~ 6

Problems Assignment - **due date is
Friday September 21**

Instructions:

* Neatness counts; lack of neatness counts negatively.

* Start each problem solution on a new page.

Problem 4-1 [2a]

Look straight into a plate glass window. You will see your face. Let I_0 be the light intensity (= energy flux) that is incident on the glass. Calculate the intensity of the reflected light.

Problem 4-2 [3]

Exercise 9.5.1

Problem 4-3 [3]

Exercise 9.5.4

Problem 4-4 [4]

Exercise 9.5.5

Problem 4-5 [4]

Exercise 9.6.2

Problem 4-6 Polarization by Reflection

Light propagating in air reflects from a planar boundary surface of a dielectric material. The index of refraction of the dielectric material is n_T . When the angle of incidence is θ_B , the reflected light is 100% polarized.

(a) Determine θ_B as function of n_T .

(b) Show that the wave vector of the transmitted wave becomes perpendicular to the wave vector of the reflected wave, in the limit $\theta_i \rightarrow \theta_B$.

Problem 4-7 [2b]

Why should a fisherman wear polarized sunglasses? Be precise and write legibly.

Problem 4-8 [2b]

How do optical fibers work? Be accurate and write legibly.