PHYSICS IN MOTION
gpb.org/physics-motion

Unit 6G
Polarization
Practice Problems

Name:

Date:

Work each of the following problems. SHOW ALL WORK.

1. Which would cause a greater decrease in the intensity of a polarized light ray: a filter oriented at 15° or a filter oriented at 75° to the path of the light?

2. A polarized ray with an intensity of 15 W/m^2 encounters a filter oriented at 60° to its path. What is the resulting intensity of the light ray?

3. A polarized ray with an intensity of 10 W/m^2 encounters a filter oriented at 30° to its path. What is the resulting intensity of the light ray?

4. At what angle is a polarization filter oriented relative to the motion of a polarized ray if it reduces the intensity of the light ray to 60% of its initial level?

questions continued on next page

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5. An unpolarized light ray has an intensity of 12 W/m^2.

   a. What is the intensity of the light ray after it passes through a horizontally oriented filter?

   b. What is the intensity of the light ray after it passes through a second filter that is oriented at a 45° angle to the first filter?

   c. What is the intensity of the light ray after it passes through a third filter that is vertically oriented?