

**PREFLIGHTS****LESSON 16 – REFLECTION AND TRANSMISSION,  
POLARIZATION****LEARNING OBJECTIVES:**

- 1. Describe the mechanics of wave reflection and transmission.**
- 2. Define the concept of polarization.**

**1)** On page 372, Griffiths states, without any apparent justification, that the phase angles of incident, reflected, and transmitted waves can only be related in two ways:

$$\delta_R = \delta_T = \delta_I \text{ (if } v_2 > v_1 \text{)}$$

$$\delta_R + \pi = \delta_T = \delta_I \text{ (if } v_2 < v_1 \text{)}$$

Can you think of any reasons why these two relationships are the only ones possible for the phase angles?

**2)** What is the answer to Problem 9.6a? I know that it's difficult to write math equations into the Preflight text entry field, so do your best to describe the math equation that is the answer to Problem 9.6a. *Hint: Compare Figure 9.6a to Figure 9.2.*

**3)** Consider a wave propagating down the  $z$ -axis. What are the possible directions of polarization of the wave if it is (a) a longitudinal wave, (b) transverse wave?

**4) Note: This is a review question from Chapter 7.** GOT IT? 27.7 from *Essential University Physics, Second Edition* by Richard Wolfson.

**5)** What did you find difficult or confusing in the pre-class work? If nothing was difficult or confusing, tell me what you found most interesting. Please be as specific as possible.

**6)** Document whatever help you received on the preclass work.