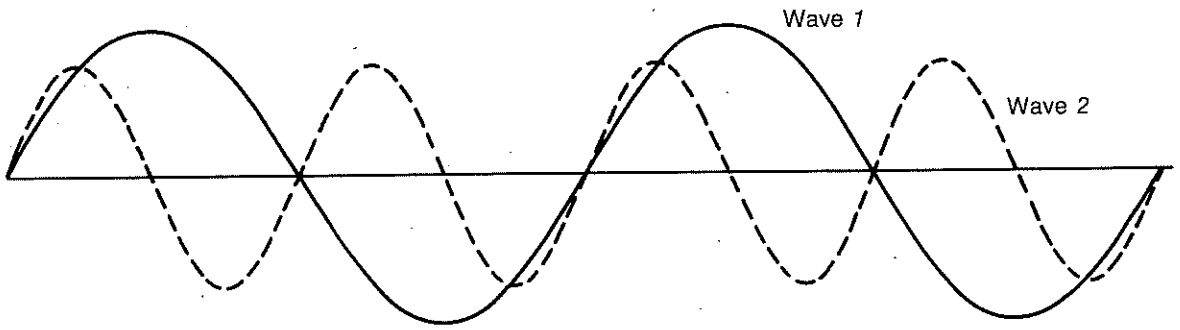
DATE _____ PERIOD _____ NAME _____

CHAPTER 14 Critical Thinking

WAVE SUPERPOSITION

The diagram shows two periodic transverse waves traveling along a taut string in the same direction at the same time. According to the principle of superposition, interference between these two waves will produce a resultant wave. Study the diagram and compare the two waves. Look for points where maximum constructive interference would occur. Also look for points where maximum destructive interference would occur.



1. Which of the two waves has the greater amplitude?

2. If the frequency of wave **1** is f_1 and the frequency of wave **2** is f_2, state the numerical relationship between the frequencies in the form of an equation.

3. If the wavelength of wave **1** is λ_1 and the wavelength of wave **2** is λ_2, state the numerical relationship between the wavelengths in the form of an equation.

4. State the principle of superposition. On the figure, sketch the resultant wave produced by the superposition of the two waves. Then label with a "C" the parts of the wave produced by constructive interference and with a "D" the parts of the wave produced by destructive interference.