

Experiment 10

DATA SHEET

Name: _____

Section: _____

QUESTIONS:

PART A

1:

- a) Describe the motion of the tape as longitudinal pulses traveled through the spring. Compare its motion to that of the direction of the pulse along the spring. What happened to the pulse when it reached the stationary end of the spring?

- b) Describe the motion of the tape as transverse pulses traveled through the spring. Compare its motion to that of the direction of the pulse along the spring. What happened to the pulse when it reached the stationary end of the spring?

2: How did the two pulses produced at opposite ends behave when they met along the spring? Elaborate on the fact that there are two possible conditions. Illustrate this with a diagram for each.

3: How did you vary the speed of the pulses in the spring? _____

Table for Part A. # 7

Distance measured between partners	Round Trip Distance	Time for 3 round trips	Time for 1 round trip (previous time/3)	Velocity of Wave (m/s)

PART B

4:

10. Which two characteristics affect the frequency? For each, answer if it is directly or inversely proportional to frequency.

_____ directly proportional or inversely proportional
 _____ directly proportional or inversely proportional

11. What affect does changing each of these have on the graph?

Amplitude: _____

Wavelength: _____

Phase: _____

- 5:** When the velocity is negative, which direction does the wave travel? _____
When the velocity is positive, which direction does the wave travel? _____
- 6:** If the wavelength of a wave is 80 m and it is moving at 320 m/s, what is its frequency? _____
- 7:** a. Draw a graph of the 2 waves and their resultant wave when the peaks of the 2 waves coincide.
- b. Draw a graph of the 2 waves and their resultant wave when the 2 waves pass peak to valley.
- 8:** Compare the resultant wave for the addition of three waves to the resultant wave for the superposition (or addition) of only 2 waves. Draw a picture if it helps.
- 9:** What happens when two waves differing only in amplitude are superposed? Illustrate this with a diagram.
- 10:** What happens when two waves with equal frequencies and amplitudes and a phase angle difference of 180° are superimposed? Illustrate this with a diagram.
- 11:** Explain how you can change the pitch of a string on a guitar. What property of the string do you vary? Does this change the wavelength of the wave on the string? If so, how? (larger or smaller?)