Wave Tank Module #3 – Wave Speed

1) A wave has a wavelength (L) of 100 ft. It has a frequency (f) of 0.1 Hz. What is the wave velocity (C)?

2) Waves are travelling with a velocity (C) of 20 ft per second. The wavelength (L) is 50 ft. If the waves crash on a seawall, how often does the seawall get wet?

3) A wave has a velocity (C) of 50 ft per second. The wave has a period of 10 seconds. What is the wavelength (L)?

4) A wave has a wavelength (L) of 200 ft and a velocity (C) of 20 ft per second. What is the wave period and frequency?

Ask the students to go to the wave tank and devise a way to measure the wave speed with the wave paddle speed dial at 30 and 60.

Is there a difference? Ask the students to postulate about their findings

Ask the students to compare these velocity estimates with those obtained by taking their wavelength and period measurements from exercises 2 and 3. How do they compare? Which do they think is more accurate.

Based on the values above ask them to estimate the velocity for a wave with the dial at 45. Have them check their answer by actually doing it in the tank.