Honors Physics – Section 14.2 – Wave Properties Homework

Name: _____ Date: _____ Period: _____

Directions: Show all of your work on a separate sheet of paper. Make sure answers have the correct significant figures and units!

77. Water waves in a shallow dish are 6.0-cm long. At one point, the water moves up and down at a rate of 4.8 oscillations/s.
- **a.** What is the speed of the water waves?
- **b.** What is the period of the water waves?

78. Water waves in a lake travel 3.4 m in 1.8 s. The period of oscillation is 1.1 s.
- **a.** What is the speed of the water waves?
- **b.** What is their wavelength?

79. Sonar A sonar signal of frequency 1.00×10^6 Hz has a wavelength of 1.50 mm in water.
- **a.** What is the speed of the signal in water?
- **b.** What is its period in water?
- **c.** What is its period in air?

80. A sound wave of wavelength 0.60 m and a velocity of 330 m/s is produced for 0.50 s.
- **a.** What is the frequency of the wave?
- **b.** How many complete waves are emitted in this time interval?
- **c.** After 0.50 s, how far is the front of the wave from the source of the sound?

81. The speed of sound in water is 1498 m/s. A sonar signal is sent straight down from a ship at a point just below the water surface, and 1.80 s later, the reflected signal is detected. How deep is the water?