Ch. 17 Worksheet

1. Diagnostic ultrasound of frequency 4.50 MHz is used to examine tumors in soft tissue. What is the wavelength in air of such a sound? If the speed of sound in tissue is 1500 m/s, what is the wavelength of this wave in the tissue?

2. The source of a sound wave has a power of 1.0 μW. If it is a point source, what is the intensity 3.00 m away and what is the sound level in decibels at that distance?

3. One of the harmonic frequencies of a tube with two open ends is 325 Hz. The next-highest harmonic frequency is 390 Hz. What harmonic frequency is next-highest after the harmonic frequency 195 Hz and what number does this next-highest harmonic correspond to? If the tube had only one open end instead of two, how would you answer change?