Chapter 17.

- 1. An experimenter wishes to generate in air a sound wave that has a displacement amplitude of 5.50×10^{-6} m. The pressure amplitude is to be limited to 0.840 Pa. What is the minimum wavelength the sound wave can have? Ans:
- 2. A sound wave in air has a pressure amplitude equal to 4.00×10^{-3} Pa. Calculate the displacement amplitude of the wave at a frequency of 10.0 kHz. Ans:
- The sound intensity at a distance of 16 m from a noisy generator is measured to be 0.25 W/m². What is the sound intensity at a distance of 28 m from the generator? Ans:
- 4. Calculate the sound level (in decibels) of a sound wave that has an intensity of $4.00 \,\mu\text{W/m}^2$. Ans:
- 5. Two small speakers emit sound waves of different frequencies equally in all directions.

Speaker *A* has an output of 1.00 mW, and speaker *B* has an output of 1.50 mW. Determine the sound level (in decibels) at point *C* in Figure P17.32 assuming (a) only speaker *A* emits sound,(b) only speaker *B* emits sound, and (c) both speakers emit sound.

Ans:



Figure P17.32