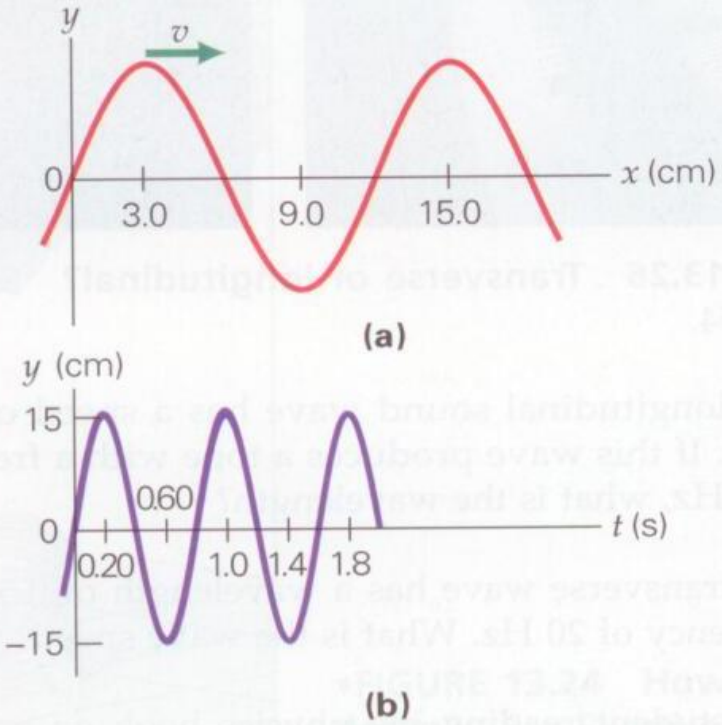
Homework #3

1. If the equation of motion for a particular air molecule vibrating due to sound waves is x = 0.015 sin (12π t) find,
    a. The Amplitude of the wave.
    b. The period of the wave
    c. The frequency of the wave.
    d. Graph this wave including labeling the axes and tic marks.
    e. Write the equation that expresses the particle's velocity and an equation for its acceleration.
    f. What is the maximum speed of the air particle?

64. ■■ A wave traveling in the $+x$ direction at a certain time is shown in •Fig. 13.27a. The particle displacement at a particular location in the medium through which the wave travels is shown in Fig. 13.27b. (a) What is the amplitude of the traveling wave? (b) What is the wave speed?



•**FIGURE 13.27 How high and how fast?** See Exercise 64.