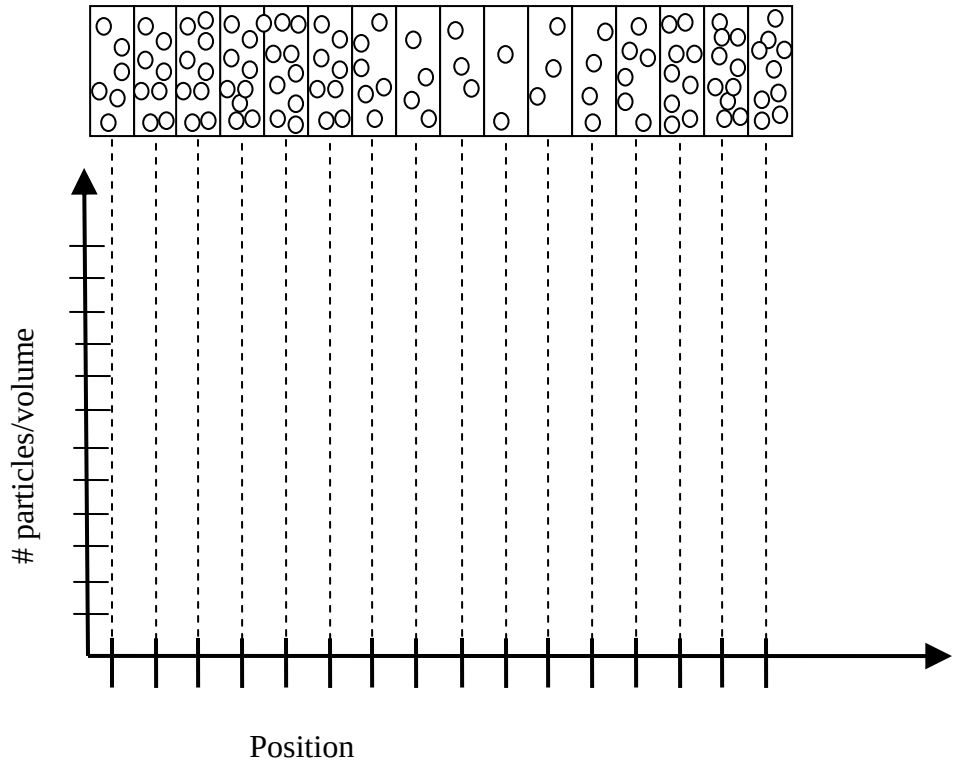
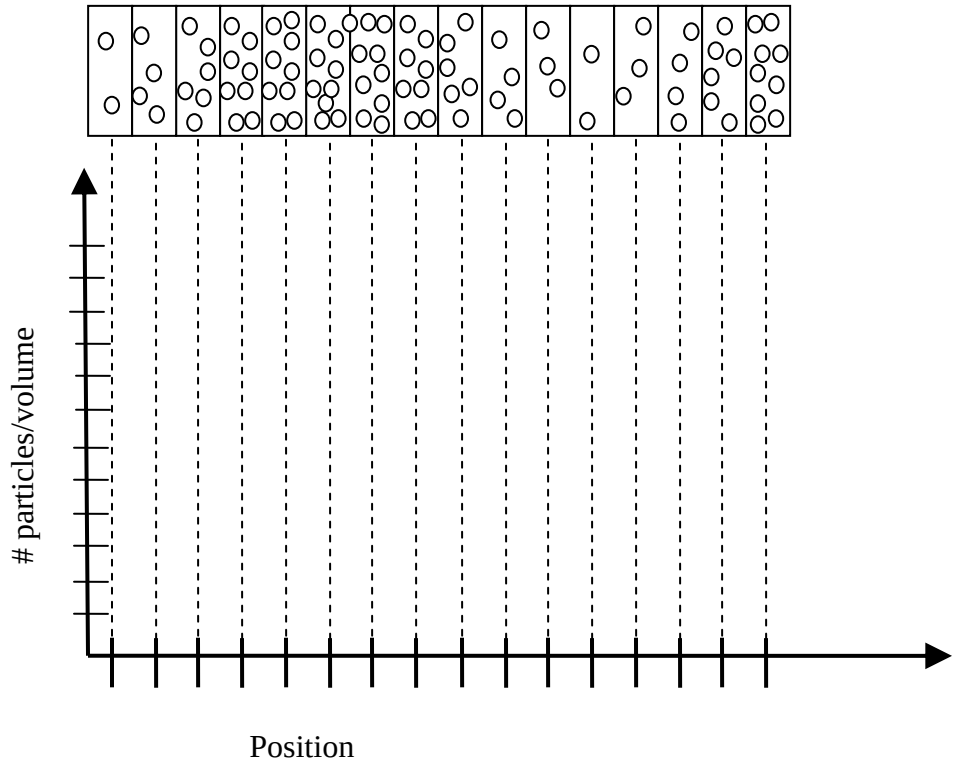
Consider the sound wave shown below for a single instant in time in dry air at 20 C. The divisions are every 5 cm. The diagram below shows the number of particles at various discreet locations (the boxes) at some instant in time. Each dashed line indicates the position for that "box" of particles. Make a graph of the density of particles (# particles per volume) as a function of position based on this diagram. Describe the shape of the curve.



If this represents a wave, what type of wave (transverse or longitudinal) is shown in this situation?



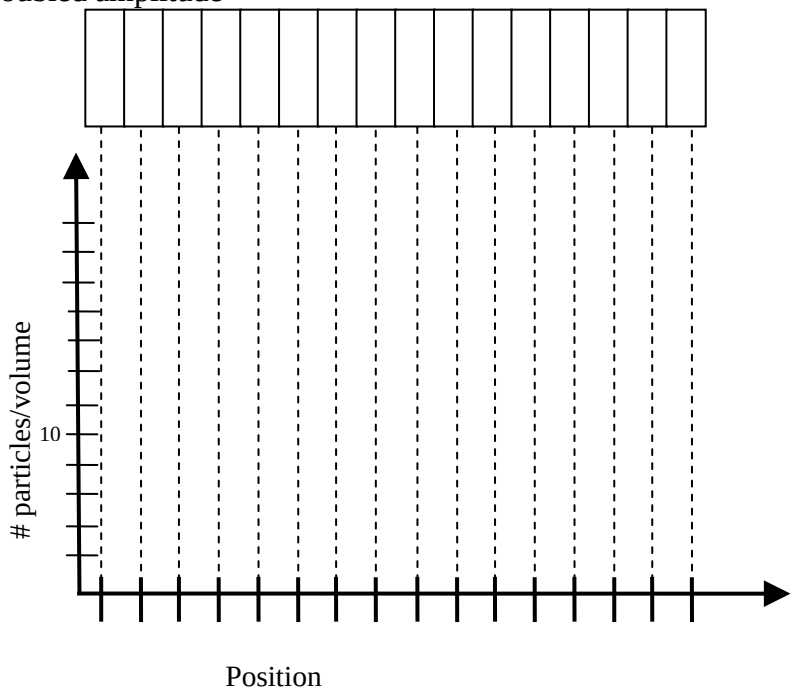
This is a graph of the same wave taken a short time later. Determine the frequency, wavelength, speed of the wave and when this second image was captured relative to the first.

Make and attach an accurate graph of the position of an average particle near 15cm as a function of time

Make and attach an accurate graph of the # particles/volume at 15cm as a function of time.

Are the particles moving from one end of the observed volume to the other?

On the grid on the below, draw the “wave” representation and the spatial representation for this wave with the doubled amplitude



Does changing the amplitude affect the spatial extent – the size of the wave?