Optics and Waves (week 3)

A tube of length 130.0 cm has one end placed in water to a depth of 10.0 cm and is open at the other end. An audio oscillator can generate signals in the frequency range between 10.0 Hz and 5.000 kHz, and is placed at the open end. Assume that the audio signal cannot transmit into water, and the speed of sound is 340.0 ms^{-1}.

a) What is the lowest resonant frequency?
b) What is the highest resonant frequency?
c) How many resonant modes can the tube sustain?