Homework 3 – Sound radiation from plates

It is given a soundboard. The soundboard is made of spruce.
Mechanical parameters of the spruce that are relevant for our purposes are the Young modulus, the Poisson ratio and the density, which can be found in the "Wood handbook" text.
Question 1: Find the thickness *h* of the soundboard that guarantees the cutoff frequency to be at 1.2 kHz.
Question 2: Plot in Matlab the direction of propagation of the acoustic wavefronts as a function of the frequency for a mechanical wave that propagates along the *x* direction.
Question 3: Why can notes whose fundamental frequency is well below the cutoff frequency be heard?

Difficulty coefficient for this homework: 1.5