

Task:

A home near the beach emits a 4.4 kHz soundwave. A)What is the wavelength of sound in air? The speed in air is 343 m/s .B)What is the wavelength of sound in sea water if the speed of sound in seawater is 1520? C)How long does it take for the sound to reach from home to the beach?

Solution:

$$v = \lambda f,$$

v – wave speed,

λ – wave length,

f – wave frequency,

$$\text{A) } v = \lambda f, \lambda = \frac{v}{f} = \frac{343 \frac{\text{m}}{\text{s}}}{4400 \text{ Hz}} = 77.95 \text{ mm}$$

$$\text{B) } \lambda = \frac{v}{f} = \frac{1520 \frac{\text{m}}{\text{s}}}{4400 \text{ Hz}} = 345.45 \text{ mm}$$

$$\text{C) If } s \text{ – the distance between home and beach, then } t = \frac{s}{v} = \frac{s}{343 \frac{\text{m}}{\text{s}}}$$