QUESTION:

Q5.Calculate the frequency of a sound wave which has wavelength of λsound=0.7727m and a velocity of υsound=340m/s

SOLUTION

For periodic waves, frequency has an inverse relationship to the concept of wavelength; simply, frequency is inversely proportional to wavelength λ (lambda). The frequency ν is equal to the phase velocity υ of the wave divided by the wavelength λ of the wave:

$$\nu = \frac{\upsilon_{\text{sound}}}{\lambda_{\text{sound}}}$$

$$\nu = \frac{340}{0.7727} = 440.02 \text{ Hz}$$

ANSWER:

$\nu = 440.02$ Hz