Question #58848, Physics / Other

The speed of sound in air is 343 m/s. If a wavelength of 1.31 m is produced by middle C on the piano, what is the frequency of the waves produced by this key?

Solution.

The relation between wavelength, speed, and frequency is described by the following equation:

$$\lambda = \frac{v}{f};$$

Therefore, the frequency can be determined:

$$f = \frac{v}{\lambda};$$

$$f = \frac{343}{1.31} = 261.83 \text{ s}^{-1}$$

Answer: 261.83 s^{-1}