An object vibrates 61440 times in a minute. if the velocity of the sound in the air is 330m/s. find the frequency of the sound in hertz and the wave length

Frequency of the sound will be equal to the frequency of object:

$$f = \frac{61440}{1min} = \frac{61440}{60s} = 1024s^{-1} = 1024Hz$$

Wave length can be found from equation:

$$\lambda = \frac{c_s}{f}$$

Where c_s- the speed of sound.

$$\lambda = \frac{330m/s}{1024Hz} \cong 0.322m$$

Answer: $f = 1024Hz, \lambda \cong 0.322m$