

Question#24504

A worker in an office 1350 m from The Big Ben sets his watch to 1 o'clock when he hears the clock chime through an open window. An hour later at 2 o'clock he checks his watch using the chimes of the Big Ben heard from the radio and finds that his watch is 4 seconds slow. The watch is working correctly.

Explain why he had set his watch 4 seconds slow at 1 o'clock

Answer:

Such as the speed of sound in air is near 330 m/s, the worker (at first case) has accepted a signal with delay.

The delay of sound is: $t = \frac{s}{v} = \frac{1350}{330} = 4.1 \text{ sec.}$