# Answer on Question # 69689 - Physics - Mechanics | Relativity

**Question**

A stone is dropped from the roof of building takes 5 sec to reach the ground. The sound of striking is heard after 5.4 sec after the stone is dropped. The velocity of sound is?

**Solution**

First find the height of the building. A stone moved with initial zero velocity and constant acceleration $g = 9.8\ \mathrm{m/s^2}$ due to gravitation. Therefore the distance $s$ which it passes by time t is given by the formula:

$$s(t) = \text{——}$$

For $t = 5\mathrm{sec}$ this distance is equal to the height $h$ of the building, so

$$= s(t = 4\mathrm{sec}) = \text{———}$$

Now we find the velocity of sound $v$ knowing that the travel time $\tau$ of sound of this distance is

We use the formula which gives

——— —

**Answer:** The velocity of sound is sec.