

Course Code: ESC106A

**Course Title: Construction Materials and Engineering
Mechanics**

**Lecture No. 56
Numerical on Rectilinear Motion**

Delivered By: Mr. Shrihari K. Naik



Lecture Intended Learning Outcomes

At the end of this lecture, student will be able to:

- Solve problems on rectilinear motion



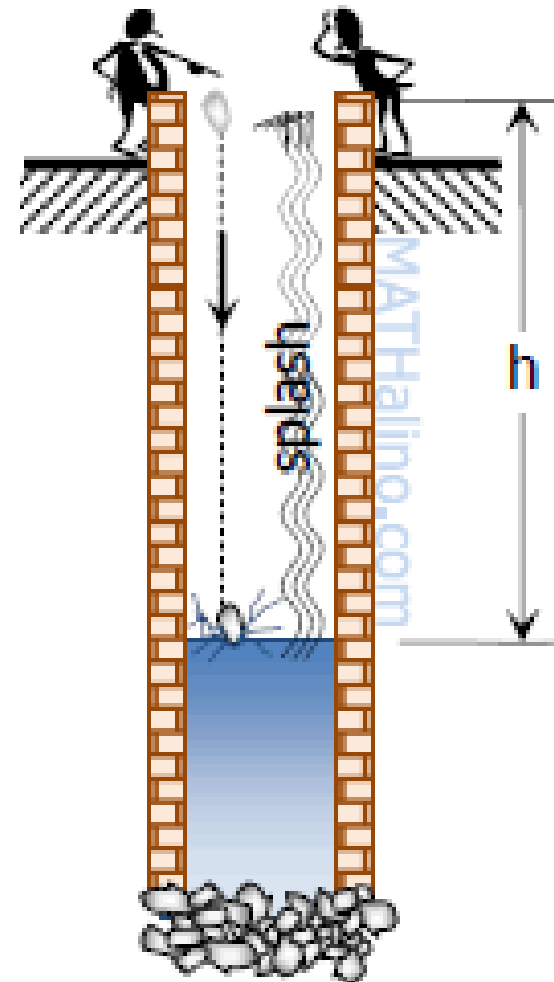
Contents

- Numerical problems on rectilinear motion



Rectilinear motion: Problem 1

A stone is dropped down a well and 5 sec later, the sounds of the splash is heard. If the velocity of sound is 341.376 m/s, what is the depth of the well?



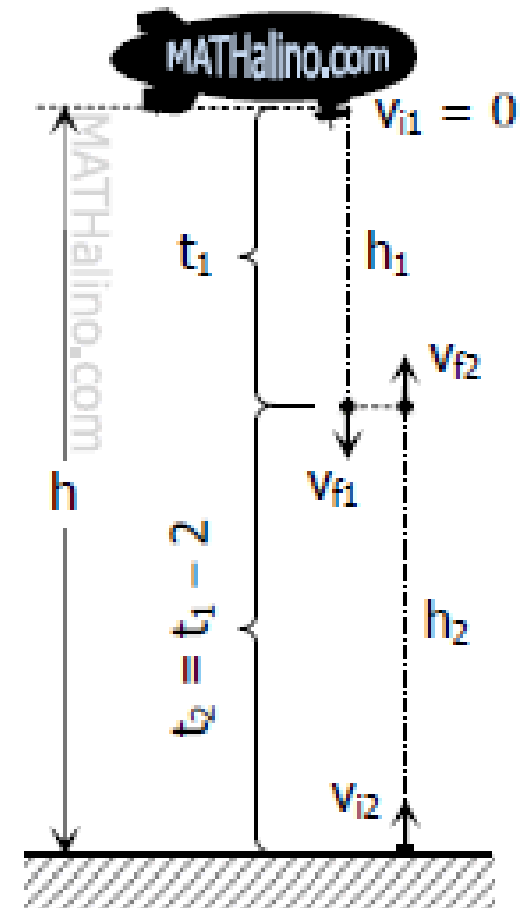
Ans: $h=27065.05$ and 107.64m



Rectilinear motion: Problem 2

A stone is dropped from a captive balloon at an elevation of 304.8 m. Two seconds later another stone is thrown vertically upward from the ground with a velocity of 75.6 m/s. If $g = 9.75 \text{ m/s}^2$, when and where the stones pass each other?

Ans: $h=182.925\text{m}$



Rectilinear motion: Problem 3

A stone is thrown vertically upward from the ground with a velocity of 14.72 m/s). One second later another stone is thrown vertically upward with a velocity of 29.44 m/s . How far above the ground will the stones be at the same level?

Ans: $h=10.994\text{m}$



Summary

- A particle is said to be in linear motion, if the path traced by it is a straight line
- Displacement-Time curve is a curve with time as abscissa and displacement as ordinate

