Course Code: ESC106A
Course Title: Construction Materials and Engineering Mechanics

Lecture No. 55
Numerical on Rectilinear motion

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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

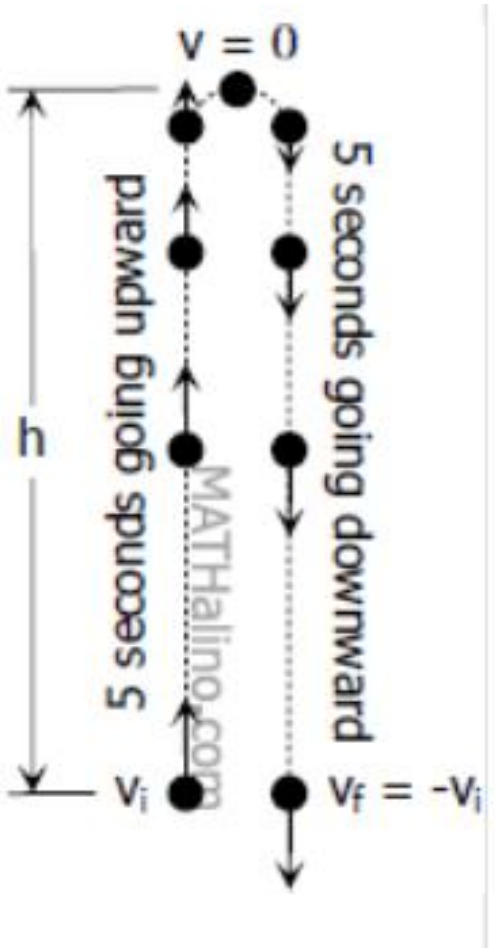
Rectilinear motion: Problem 1

On a certain stretch of railway track, trains run at 96.56 kmph. Assume that the brakes are applied at once and retard the train at the uniform rate of 0.61 $m/s^{2.}$. How far back train should be stopped?

Ans: S=589.7m

Rectilinear motion: Problem 2

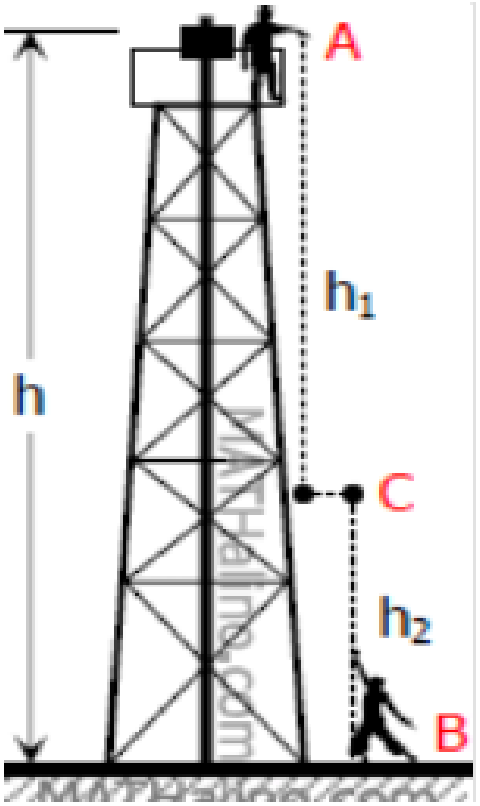
A stone is thrown vertically upward and return to earth in 10 sec. What was its initial velocity and how high did it go?



Ans: h=122.625m

Rectilinear motion: Problem 3

A ball is dropped from the top of a tower 24.38 m high, at the same instant a second ball is thrown upward from the ground with an initial velocity of 12.19 m/s. When and where do they pass, and with what relative velocity?



Ans: **t=2 sec**
h1=4.905m
Vr=12.19m

Summary

- A particle is said to be in linear motion, if the path traced by it is a straight line