- In case of uniform motion

$$V = V_{av} = \frac{x_2 - x_1}{t_2 - t_1} = \frac{\Delta x}{\Delta t}$$

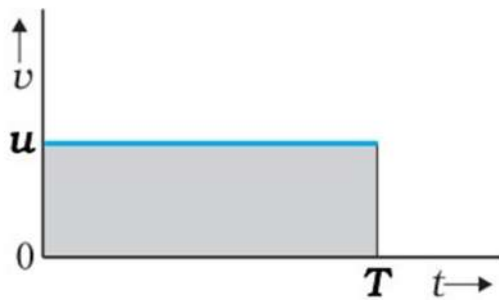Or $$x_2 - x_1 = V(t_2 - t_1) \quad \dots\dots\dots\dots[7]$$

i.e   **Displacement = velocity · time interval   ……..[8]**

NOTE: Note that for uniform motion, velocity is the same as the average velocity at all instants.

GRAPHICAL REPRESENTATION UNIFORM MOTION

1. Velocity – Time Graph: (v-t graph)

(a) For v = constant and positive:

The fig. shows velocity-time graph for the simple case of an object moving with constant positive velocity u.
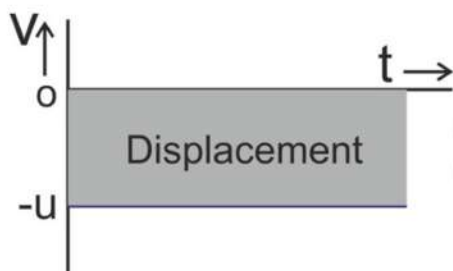
The v-t curve is a straight line parallel to the time axis and the area under it between t = 0 and t = T is the area of the rectangle of height u and base T. Therefore,

Area under v-t graph = u × T = uT = displacement in time interval T.

"So, area under v-t graph represents displacement of the body in the time interval".

(b) For v = constant and negetive:

The fig. shows velocity-time graph for the simple case of an object moving with constant negetive velocity -u.