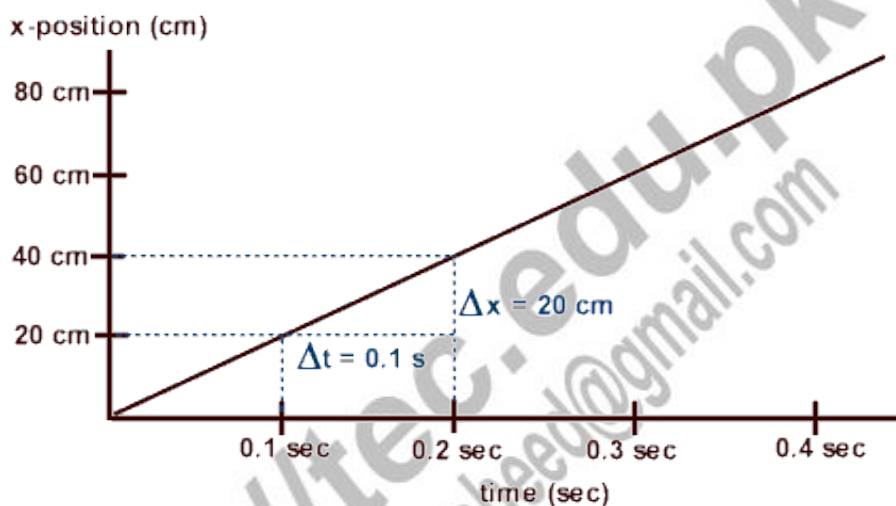


Constant Velocity: Velocity-Time Graphs

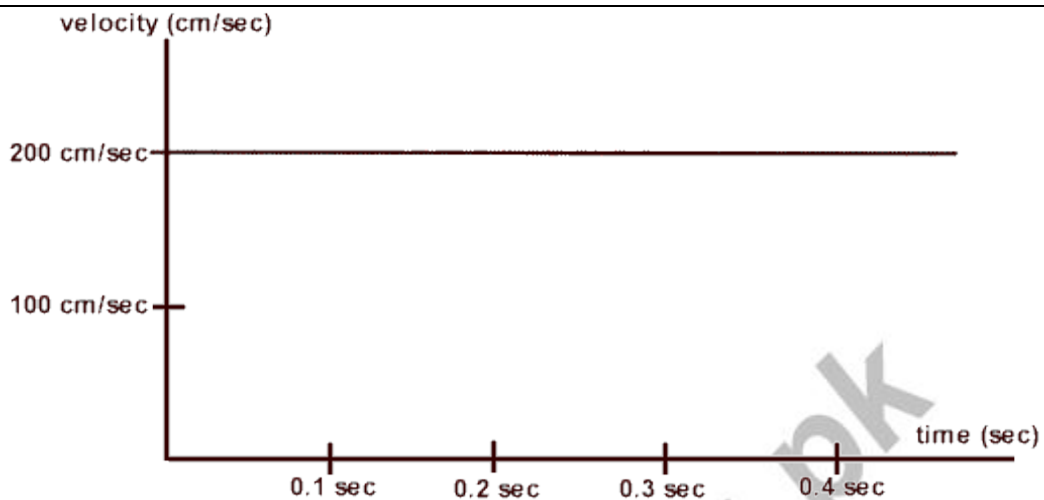
Given below a picture of a ball rolling across a table. It shows the position of the object at regular intervals of time, 0.1 seconds.

Notice that the ball covers an equal distance between during equal intervals of time. Let's assume this distance equals 20 cm and display the ball's motion on a graph plotting its x-position & time.



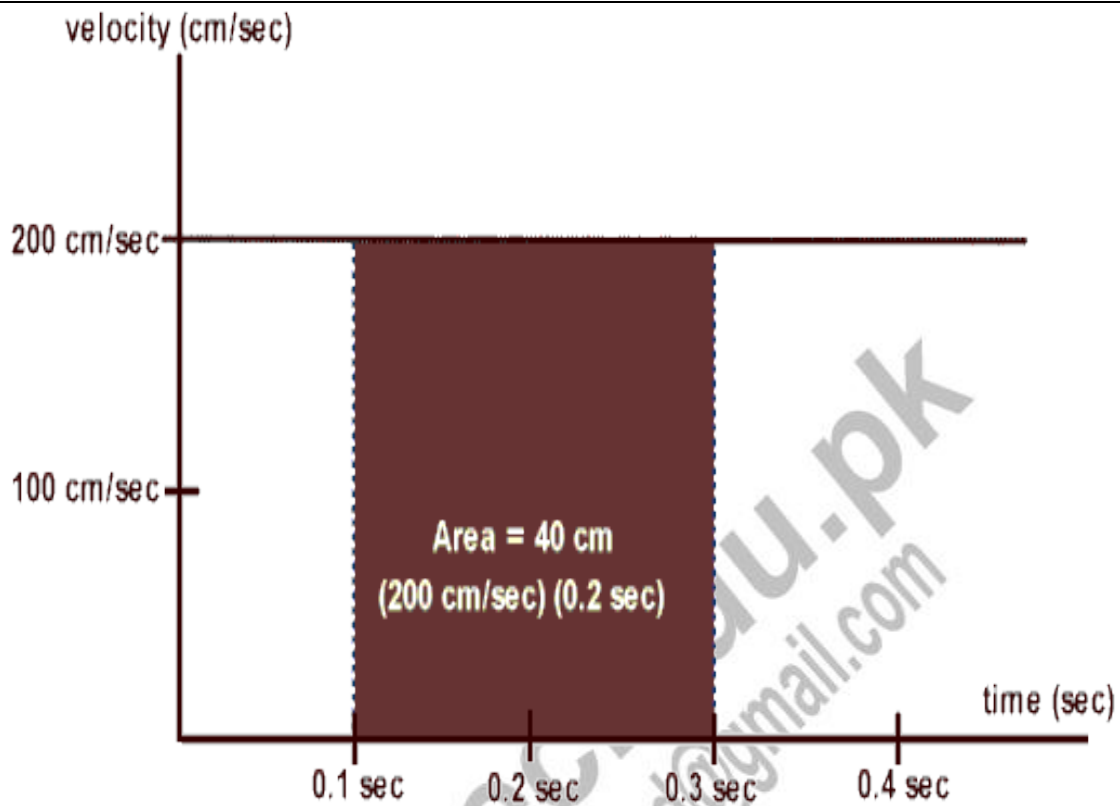
The slope on the graph shows that distance of 20 cm is covered by the object in 0.1 sec. So, its speed will be 200 cm/sec from the above calculation.

The following graph displays the same information in a new format, a velocity & time graph.



This graph very clearly communicates that the ball's velocity never changes since the slope is parallel to x –axis.. Note that during all the intervals of time the ball maintained a constant velocity of 200 cm/sec.

To determine how far the ball travels, we must calculate the area bounded by the "curve" and the x- or time axis.



You can observe the graph from 0.1 to 0.3 sec the ball covers a displacement of 40 cm.

For complete SLO's Preparation email to: akber.khursheed@gamil.com

Three orientations of velocity-time graphs in one-dimensional uniform velocity.

On each graph, the height of the graph represents the object's velocity and the area bounded by the graph and the x- or time axis represents the object's displacement.

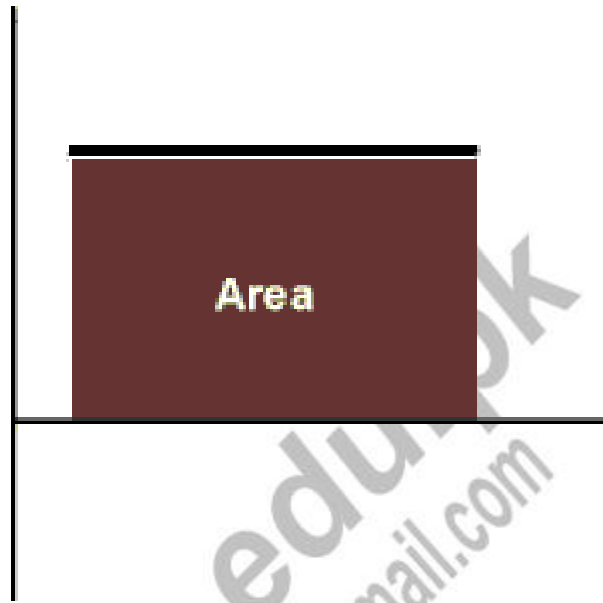
<http://tec.edu.pk>
akber.khursheed@gmail.com

When there is no acceleration or slope equals to zero, or no change in velocity. The object is traveling at a constant, steady rate.



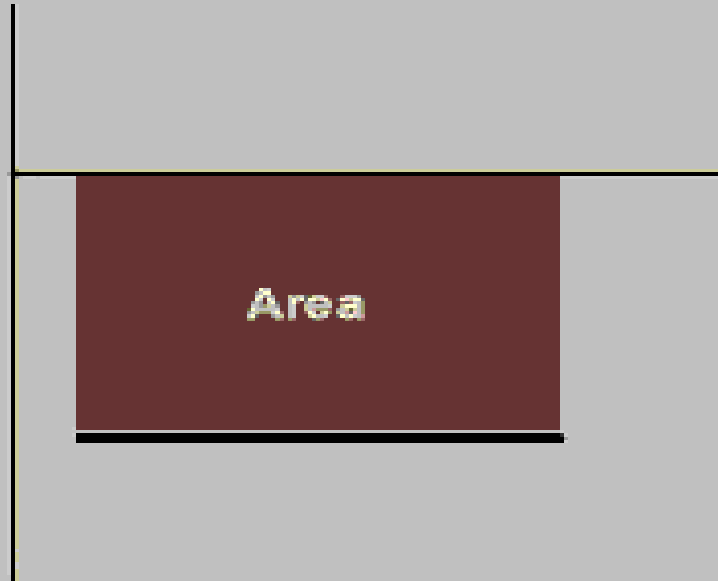
It is moving in a positive direction since the graph is in

quadrant I where the y-axis the velocity value is positive.



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It is moving in a negative direction since the graph is in quadrant IV where the y-axis velocity is negative.



The object is traveling in a negative direction since its rectangular area is located in a negative quadrant.

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