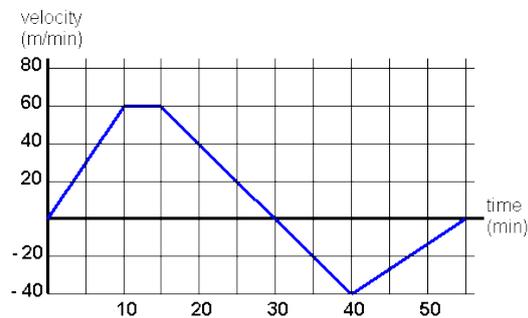
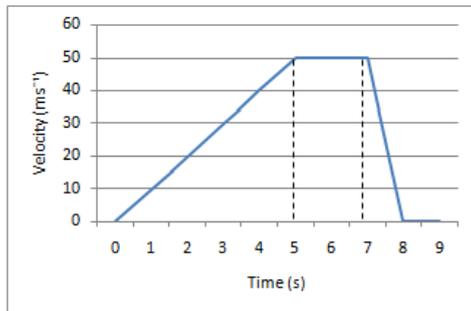


**Class XI**

**PHYSICS ASSIGNMENT**

1. Find displacement from following velocity time graph.



2. Find the total distance travelled by a body and the body's displacement for a body whose velocity is  $v(t) = 6\sin 3t$  on the time interval  $0 \leq 2\pi \leq t$ .
3. The president's airplane, Air Force One, flies at 250 m/s to the east with respect to the air. The air is moving at 35 m/s to the north with respect to the ground. Find the velocity of Air Force One with respect to the ground.
4. velocity of man w.r.t to ground is 3km/h due east. velocity of rain with respect to man is 4km/h and falls vertically downwards. If the man moves at 6km/hr then the velocity of rain w.r.t to man is?
5. A football player kick a ball at an angle of  $37^\circ$  to the horizontal with an initial speed of 15 m/s. Assuming that the ball travels in a vertical plane, calculate (i) the time at which the ball reaches the highest point. (ii) The maximum height reached by the ball (iii) the horizontal range of the projectile and (iv) the time for which the ball is in air.
6. A bullet is fired at an angle of  $15^\circ$  with the horizontal and hits the ground 6 km away. Is it possible to hit a target 10 km away by adjusting the angle of projection assuming the initial speed to be the same?
7. An object is launched at a velocity of 20 m/s in a direction making an angle of  $25^\circ$  upward with the horizontal.
- a) What is the maximum height reached by the object?
- b) What is the total flight time (between launch and touching the ground) of the object?
- c) What is the horizontal range (maximum x above ground) of the object?
- d) What is the magnitude of the velocity of the object just before it hits the ground?
8. A projectile is launched from point O at an angle of  $22^\circ$  with an initial velocity of 15 m/s up an incline plane that makes an angle of  $10^\circ$  with the horizontal. The projectile hits the incline plane at point M.
- a) Find the time it takes for the projectile to hit the incline plane.

b) Find the distance OM.

