Assignment – 01

CLASS XI CHAPTER 0: Mathematical Tools

Physics

Integration & Differentiation:

1. The acceleration of a particle starting from rest varies with time according to relation $a = 3t + 2$. Find the velocity of the particle after time 5 seconds.
2. The velocity of a body depends on time according to equation $v = 20 + 0.1t^2$. Which statement is correct:
   (a) The body has uniform acceleration.
   (b) The body has uniform retardation.
   (c) The body has non uniform acceleration
   (d) The body has zero acceleration.
3. The displacement of a particle moving along x axis is $x = 18t + 5t^2$. The instantaneous velocity and acceleration at $t = 2s$ are?
4. The acceleration of a particle starting from rest varies with as $a = 2t + 5$. Find the velocity and displacement of the particle from rest to time $10s$.
5. The velocity of a particle varies with time as $v = e^{3t} + 3t^2 + 5$. The displacement of the particle travelled by the particle between time $t = 2s$ to $t = 10s$ is?