

$s(t)$ = distance a particle travels from time '0' to 't'.

$v(t)$ = velocity of a particle at time 't'.

$a(t)$ = acceleration of a particle at time 't'.

My first question is: are velocity, distance, and acceleration only the function of time?

If they are not, then in which case they are only the functions of time? Because, in the above three functions, they seem to be the function of time only.

Answer: Such approach is used in the kinematics, which is the branch of mechanics that describes the motion of points, bodies (objects) and systems of bodies (groups of objects) without consideration of the causes of motion.

In kinematics only the time dependencies of the movement are considered. It describes only *how* the objects are moving. All the reasons, *why* the body moves are studied in dynamics – another part of mechanics.