

MOTION IN A STRAIGHT LINE

(I). for objects in accelerated rectilinear motion, the five quantities, displacement x , time t , initial velocity v_i , final velocity v and acceleration a are related by a set of kinematic equations

OR EQUATIONS OF MOTION

$$v = u + at$$

$$v^2 = u^2 + 2as$$

$$s = ut + \frac{1}{2}at^2$$

From above equations are the equations of motion for particle. If the position of the particle at $t = 0$ is x_0 . If the particle starts at x_0 at $t = 0$, then in the above equation x replaced by $x - x_0$.

(2). The relative velocity for object moving with velocity v_1 and object moving with velocity v_2 is given by