Constant Acceleration

Because acceleration is the rate of change in velocity, which is a vector, changes in this number can affect the vector's magnitude and direction. On the other hand, this lesson will concentrate on magnitude changes; then, the term speed may be used to replace the term velocity. Here, every action will be thought of as being carried out in a straight line. Although acceleration can be zero, positive, or negative, it is frequently misinterpreted as a synonym for speed. This is true when the acceleration for a straight-line motion is positive. A negative acceleration indicates that the item is slowing down, whereas a null acceleration indicates that the speed does not change.

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Constant Acceleration Formula

One must first comprehend all the variables in its formula to understand how to calculate constant acceleration.

$$a = \frac{vf - vi}{t}$$

Here,

a = Acceleration

v_f = Final Velocity

v_i= Initial Velocity

t = Time

We're all aware that putting our foot down on the accelerator causes an automobile to accelerate. The acceleration of a particle is the rate at which its velocity changes over time. If the particle's velocity changes at a constant rate, this rate is called constant acceleration.

Constant Acceleration Examples

Some examples of constant acceleration that we come across in our daily lives are as follows:

- A ball is rolling downhill on an inclined plane.

- A package that fell from an aircraft.
- The Moon's orbiting the Earth.
- A stone fell or dropped from a tower.
- Tennis ball tossed up vertically.
- Water dripping from a shower nozzle.

Variable Acceleration

The area under the acceleration time curve reflects the change in velocity if acceleration is a function of time. If acceleration is a displacement function, then the area under the acceleration distance curve equals half the difference in velocities squared.