

Answer on Question #66185, Physics | Mechanics | Relativity

Question

The motion of a particle is defined by the relation $S=2t^3-15t^2+24t+4$ where S is expressed in metres and t in seconds. Determine when the velocity is zero.

Solution

Velocity is the first derivative of the path at the time. Find the equation of speed

$$V = S' = 6t^2 - 30t + 24$$

Determine the time when velocity is zero, it will set up and solve the equation

$$V = 0$$

$$6t^2 - 30t + 24 = 0$$

$$t^2 - 5t + 6 = 0$$

Theorem the inverse vieta theorem we get

$$t_1 = 2s$$

$$t_2 = 3s$$

Answer $t_1=2s, t_2=3s$.

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