Motion of a Particle

(a) The distance s of a particle at time t is given by $s = 5t^2 + 8t + 3$. Find an expression for the velocity v of the particle, and the velocity after 6 seconds.

(b) The distance s of a particle at time t is given by $s = t^3 + 2t^2 + 10t - 3$. Find an expression for the velocity v of the particle, and the velocity after 2 seconds.

(a) The distance s of a particle at time t is given by $s = 0.5t^3 - 0.1t^2$. Find expressions for the velocity v and acceleration a of the particle. Find the acceleration after 4 seconds.

(b) The distance s of a particle at time t is given by $s = 5t + 3t^2 + t^3$. Find expressions for the velocity v and acceleration a of the particle. Find the acceleration after 0.5 seconds.

(a) The distance s of a particle at time t is given by $s = 2t^2 - 6t$. Find the time at which the velocity is instantaneously zero.

(b) The distance s of a particle at time t is given by $s = 2t^3 - 15t^2 + 9t$. Find the time at which the acceleration is instantaneously zero.

A particle travels in a straight line where the distance from the origin O is given by $s = 2t^2 - \frac{3}{t}$. Find the velocity and acceleration of the particle after 5 seconds.