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3 Exam Questions
Yr 1 – Variable Acceleration

(1) The displacement of a particle relative to the origin is given by $x = 2t^3 - 9.5t^2 + 3t + 8$
The particle is instantaneously at rest at the points A and B. Find the distance AB.
(2) A particle moves in a horizontal direction with acceleration $a = (6t - 16)ms^{-2}$
The particle starts with a position of $-12m$ relative to the origin O and has initial velocity $-13ms^{-1}$
Find the times when the particle is at the origin O.
(3) A particle travels from the origin O in a horizontal direction with velocity $v = 3t^2 - 13t + 4$.
Find the distance the particle travels in the first 6 seconds of motion.

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