6 **In this question you must show detailed reasoning.**

A particle moves in a straight line. Its velocity $v\,\mathrm{ms}^{-1}$ after t s is given by $v = t^3 - 5t^2$.

(a) Find the times at which the particle is stationary. [2]

(b) Find the total distance travelled by the particle in the first 6 seconds. [3]