7 A particle P starts from a point O and moves in a straight line. The velocity $v\,\text{m}\,\text{s}^{-1}$ of P, at time t s after leaving O, is given by $v = \frac{1}{3}(2t-3)(t-4)$.

(a) Find the acceleration of P when $t = 2$. [2]

(b) Find the total distance travelled by P in the first 3 seconds of its motion. [5]

(c) Determine whether P returns to O. [2]