2 A particle P is moving along a straight line, which passes through the fixed point O.

At time t seconds ($t \geqslant 0$), the velocity, v m/s, of P is given by

$$v = t^2 - 3t + 4$$

At time t seconds the acceleration of P is a m/s^2

(a) Find an expression for a in terms of t

(2)

The displacement of P from O is 7 m when $t = 2$

(b) Find the exact displacement of P from O when $t = 4$

(5)

Question 2 continued

(Total for Question 2 is 7 marks)