5 A particle P is moving along the x-axis.

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

$$v = 2t^2 - 19t + 35$$

(a) Find the acceleration of P when $t = 5$

(2)

The particle comes to instantaneous rest at the points A and B at times t_1 seconds and t_2 seconds respectively, where $t_1 < t_2$

(b) Find the value of t_1 and the value of t_2

(2)

(c) Use calculus to find the distance AB

(3)

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Question 5 continued

(Total for Question 5 is 7 marks)

P 7 4 2 8 4 A 0 1 1 3 2