7   A particle P moves along the x-axis so that at time t seconds, $t \geqslant 0$, the velocity of P, v m/s, is given by $v = 5\cos 2t$

(a) Find the value of t when P first comes to instantaneous rest.

(2)

(b) Find the magnitude of the maximum acceleration of P.

(3)

When $t = 0$, P is at the point A, where $OA = 0.2$ m.

When P first comes to instantaneous rest, P is at the point B.

(c) Find the distance OB.

(4)

Question 7 continued

P 5 3 3 9 1 A 0 1 7 3 6

Question 7 continued

P 5 3 3 9 1 A 0 1 8 3 6

Question 7 continued

(Total for Question 7 is 9 marks)

P 5 3 3 9 1 A 0 1 9 3 6