The position of a moving car at time t is given by $f(t) = at^2 + bt + c$, $t > 0$, where a, b and c are real numbers greater than 1. Then the average speed of the car over the time interval $[t_1, t_2]$ is attained at the point :

[Main Sep. 06, 2020 (I)]

(a) $(t_2 - t_1)/2$

(b) $a(t_2 - t_1) + b$

(c) $(t_1 + t_2)/2$

(d) $2a(t_1 + t_2) + b$

(c) Average speed $= f'(t) = \dfrac{f(t_2) - f(t_1)}{t_2 - t_1}$

$$2at + b = a(t_1 + t_2) + b \Rightarrow t = \frac{t_1 + t_2}{2}$$