

3. June/2022/Paper_9709/41/No.1

A car starts from rest and moves in a straight line with constant acceleration for a distance of 200 m, reaching a speed of 25 m s^{-1} . The car then travels at this speed for 400 m, before decelerating uniformly to rest over a period of 5 s.

(a) Find the time for which the car is accelerating. [2]

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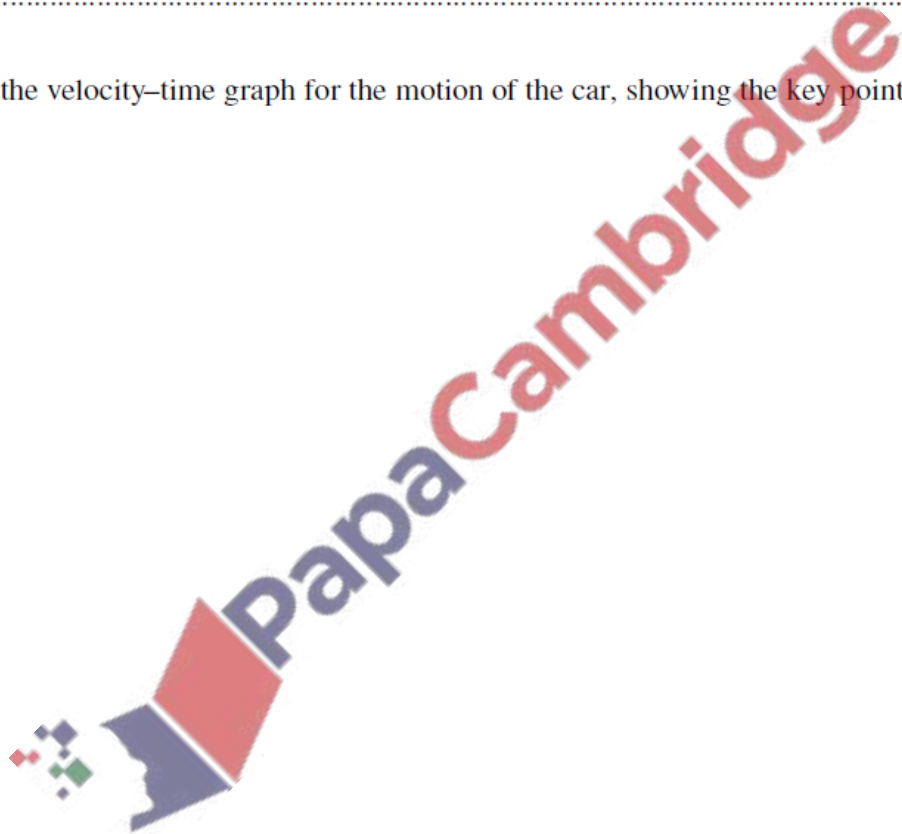
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(b) Sketch the velocity–time graph for the motion of the car, showing the key points. [2]



(c) Find the average speed of the car during its motion. [2]

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7. June/2022/Paper_9709/43/No.2

A particle P is projected vertically upwards from horizontal ground. P reaches a maximum height of 45 m. After reaching the ground, P comes to rest without rebounding.

- (a) Find the speed at which P was projected. [2]

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- (b) Find the total time for which the speed of P is at least 10 m s^{-1} . [3]

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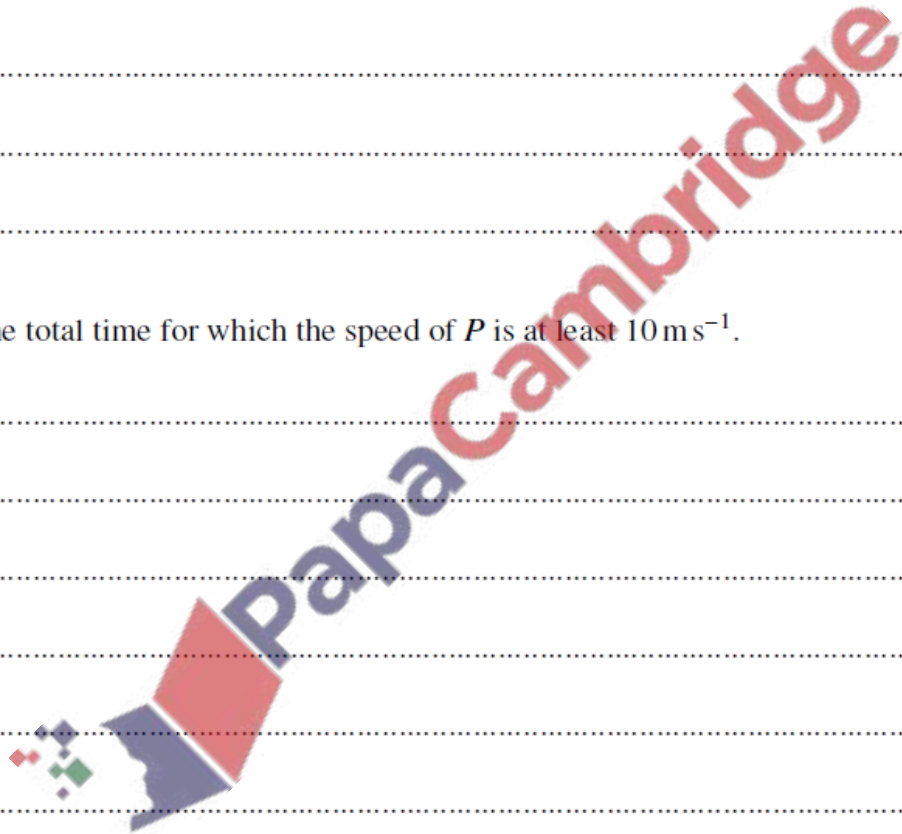
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- (b) Given that the velocity of P is zero only at $t = 5$, find the distance travelled in the first 10 seconds of motion. [5]

