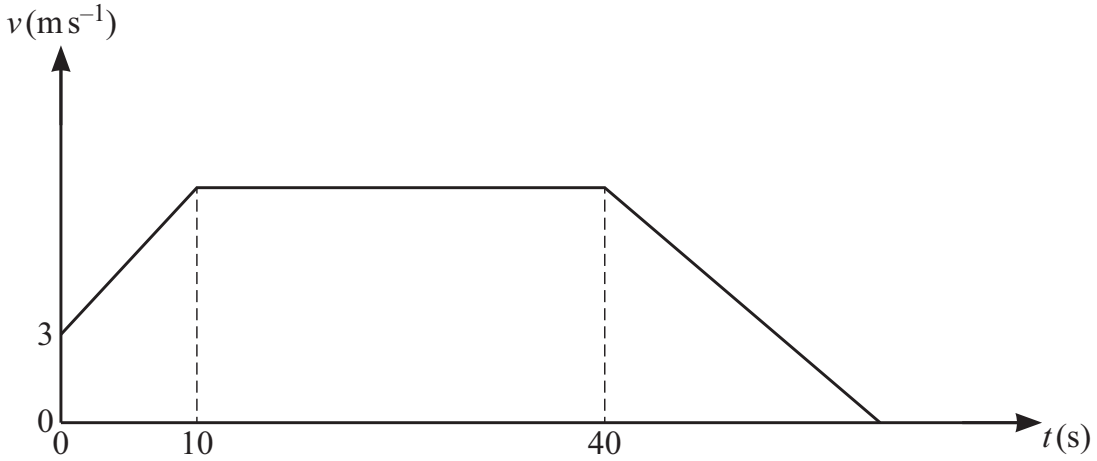
3



The diagram shows the velocity-time graph of the motion of a cyclist. The graph consists of three straight line segments. The cyclist passes a point O with speed $3\,\text{m s}^{-1}$ and then accelerates for 10 s with constant acceleration $0.5\,\text{m s}^{-2}$. He then travels at constant speed for 30 s before decelerating, coming to rest at point P, covering a distance of 80 m whilst decelerating.

(a) Find the total time taken for the journey from O to P. [3]

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