1

(*f*) A motorbike accelerates from 12 m s^{-1} to 36 m s^{-1} in 3 seconds.

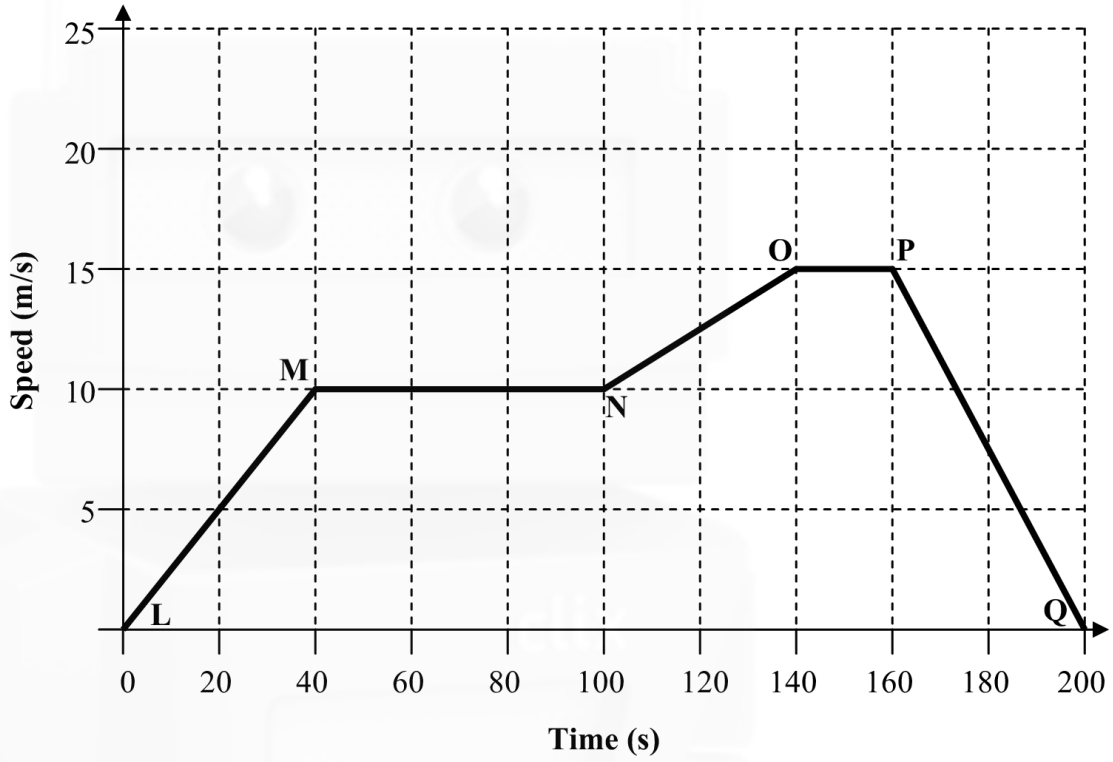
Calculate the acceleration of the motorbike.

Calculation

For examiner use only

(1) (2)

(*c*) The graph shows the speed of a Luas tram as it travels from Stop **L** to Stop **Q**. (21)



(*i*) What is the maximum speed of the tram during its journey? _____

(*ii*) Calculate the distance travelled by the tram between position **M** and position **N**.

Calculation

(*iii*) Calculate the acceleration of the tram between position **N** and position **O**.

Calculation

(*iv*) What are the units of acceleration? _____

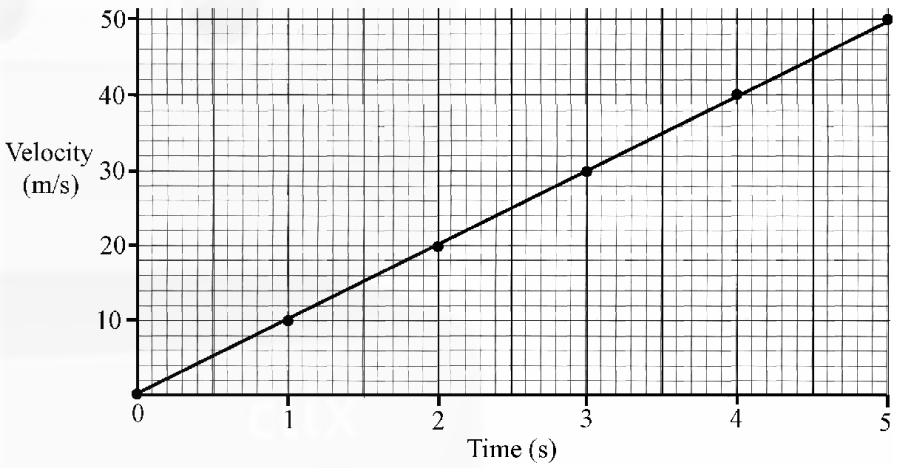
(*v*) Describe the motion of the tram between positions **P** and **Q**.

_____

use only

(1) (2)

(*c*) A stone was dropped from the top of a tall cliff. The stones approximate velocity was measured each second as it fell. The data collected during this experiment is given in the graph.



(*i*) Define ***velocity***. (6)

(*ii*) Use data from the graph to ***estimate the acceleration of the stone*** as it fell. Give the ***units of acceleration*** with your answer. (6)