

Speed / Velocity

v in m/s · s in m · t in s

a in m/s^2 · **v**, **u** in m/s · **t** in s

v, u in m/s $\cdot$ a in m/s² $\cdot$ s in m

1 Using $v = s \div t$



Answer = _____

2 Using $a = (v - u) \div t$



Answer = _____

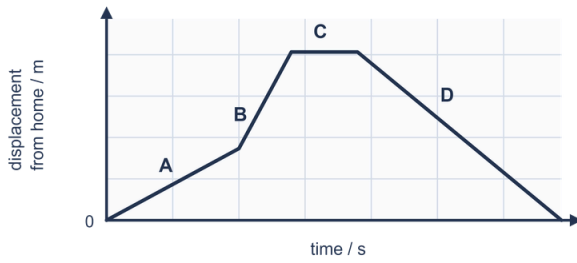
3 Using $v^2 = u^2 + 2as$

Answer = _____

Distance–Time and Velocity–Time Graphs

Displacement–Time Graph

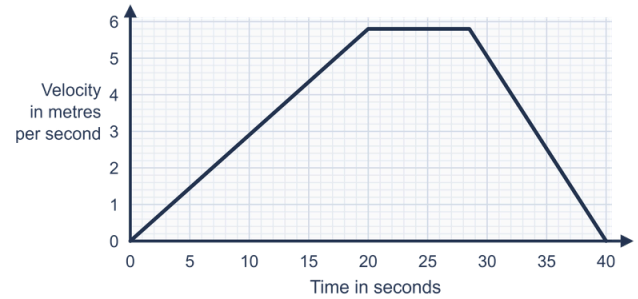
Gradient = speed



- 1 Which part of the journey was the object stationary?
- 2 Which part of the journey was the object moving the fastest?
- 3 Calculate the speed of the object at the fastest part of the journey.
- 4 What is the relevance of the negative gradient in part D?

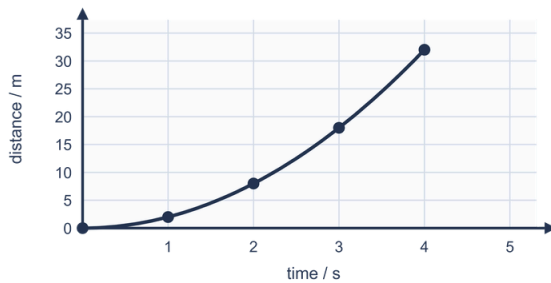
Velocity–Time Graph

Area = distance · Gradient = acceleration



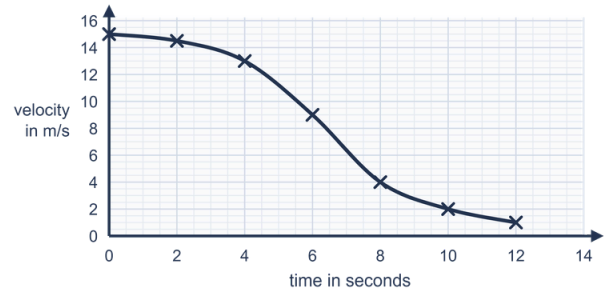
- 7 At which 2 times was this object stationary? _____ and _____
- 8 What is the total distance travelled during the 40 second journey?
- 9 What is the fastest speed during the journey?

Curved Distance–Time Graph



- 5 What is the instantaneous speed of the object at $t = 3$ seconds?
- 6 What is the average speed of the object during the first 3 seconds?

Curved Velocity–Time Graph



- 10 What is the acceleration during the first 12 s of the journey?
- 11 Calculate the instantaneous acceleration at $t = 6$ seconds.