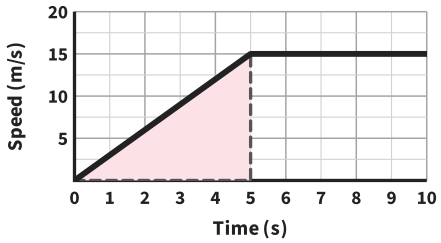
Speed-Time Graphs: Acceleration

1

Find the acceleration in the first 5 seconds.



change in speed = 15 m/s

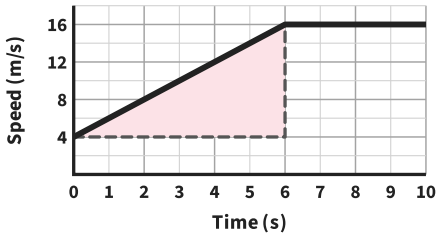
time = 5 s

acceleration = $\frac{15}{5}$

Acceleration _____ m/s²

2

Find the acceleration in the first 6 seconds.



change in speed = 12 m/s

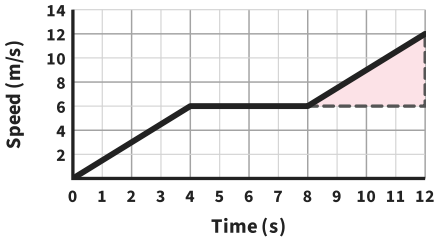
time = 6 s

acceleration =

Acceleration _____ m/s²

3

Find the acceleration from 8 to 12 seconds.



change in speed = 6 m/s

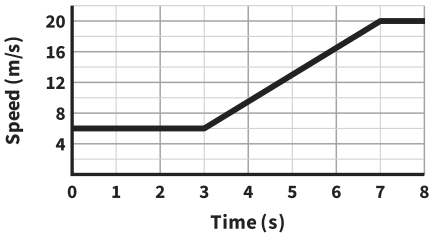
time = s

acceleration =

Acceleration _____ m/s²

4

Draw a triangle under the line.
Find the acceleration from 3 to 7 seconds.



change in speed = m/s

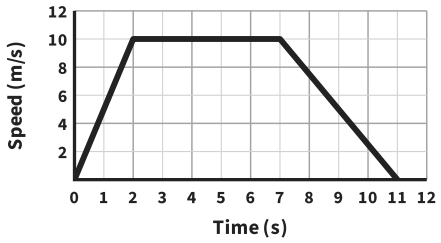
time = s

acceleration =

Acceleration _____ m/s²

5

Find the acceleration from 7 to 11 seconds.



change in speed = m/s

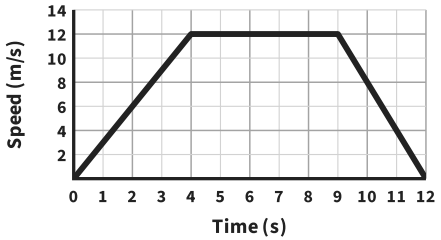
time = s

acceleration =

Acceleration _____ m/s²

6

Sam says the car stopped between 4 and 9 seconds because the line is flat.
Explain why Sam is wrong. What is the acceleration between 4 and 9 seconds?



Acceleration _____ m/s²

7

A motorbike speeds up steadily from 6 m/s to 27 m/s in 7 seconds.
Work out its acceleration.

Acceleration _____ m/s²

8

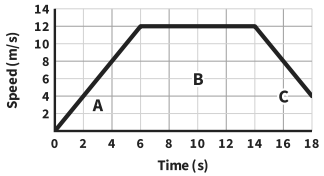
A lift is moving at 4 m/s. It slows down steadily and stops after 2.5 seconds.
Work out its deceleration.

Deceleration _____ m/s²

Speed-Time Graphs: Acceleration *further practice*

9

Find the acceleration in each part, A, B and C, of the journey.



Answer _____

10

A van speeds up steadily from 5 m/s to 17 m/s. Its acceleration is 3 m/s^2.
How long does this take?

Answer _____

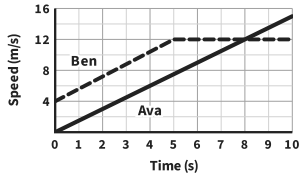
11

A train starts from a standstill and reaches 72 km/h in 40 seconds.
Find its acceleration in m/s^2.

Answer _____

12

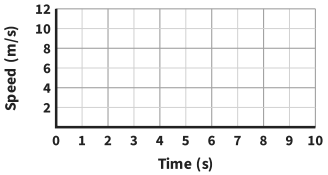
Ava and Ben cycle from the start of a path. The graph shows their speeds.
Who has the greater acceleration at the start? Show how you know.



Answer _____

13

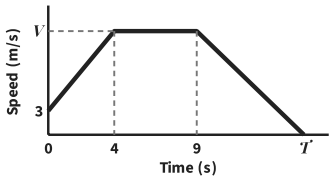
A cyclist is moving at 2 m/s.
She speeds up with an acceleration of 1.5 m/s^2 for 4 seconds, then rides at a constant speed for 6 seconds.
Draw the speed-time graph.



Answer _____

14

The sketch shows a car's journey.
It accelerates at 2.5 m/s^2 for the first 4 seconds. At the end it decelerates at 2 m/s^2 until it stops. Find V and T.



Answer _____

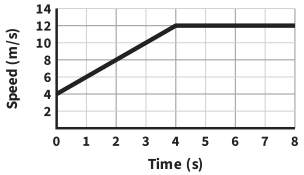
15

A cable car must not accelerate faster than 1.2 m/s^2. It goes from a standstill to 3.5 m/s in 2.8 seconds.
Is it within the limit?
Show how you know.

Answer _____

16

Tom says the acceleration in the first 4 seconds is 12 ÷ 4 = 3 m/s^2.
Explain Tom's mistake.
Find the correct acceleration.



Answer _____