

Velocity-time graphs

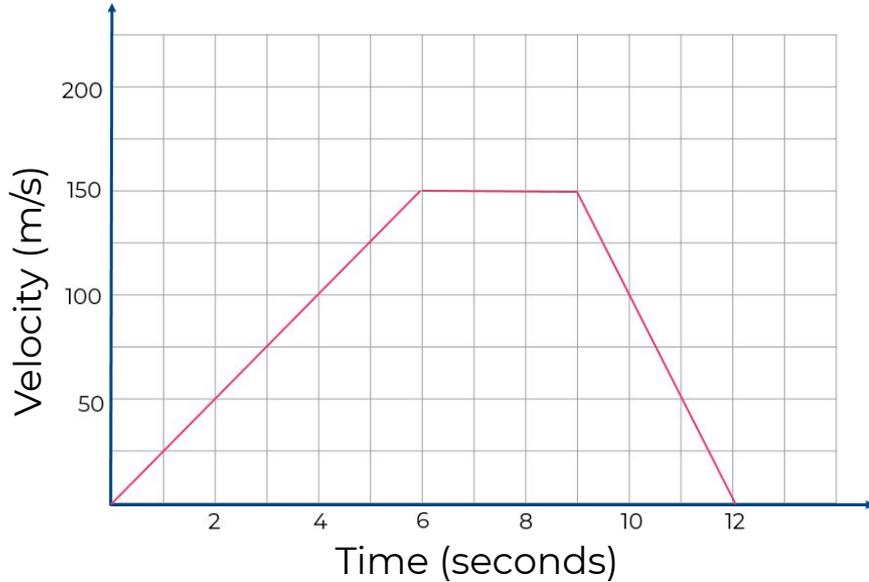
Mathematics

Mr Clasper



Velocity-time graphs

1. Here is the journey of a sports car.



- What is the speed of the car after
 - 4 seconds?
 - 6 seconds?
- What is the maximum speed the car reaches? At what time does it reach this?
- How long is the car travelling at constant speed?
- For how long is the car travelling at or greater than 125 m/s?

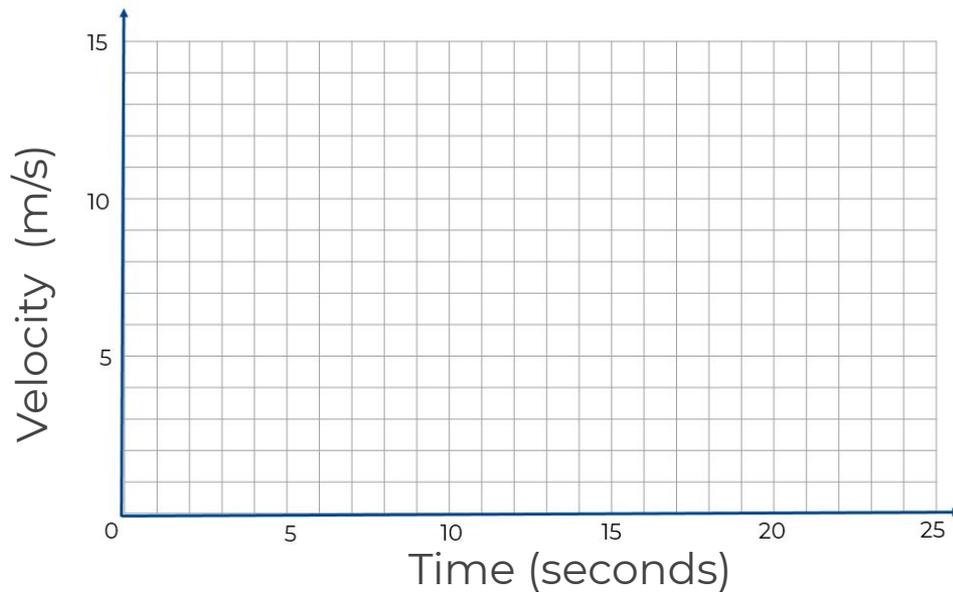


Velocity-time graphs

2. A sprinter runs a race starting from rest

- After 4 seconds she is travelling at 7 m/s. The acceleration is constant.
- After 12 seconds she is travelling at 11 m/s. The acceleration is constant.
- She runs at 11 m/s for 6 seconds and crosses the finishing line.
- She comes to a stop in 3 seconds. The deceleration is constant.

Draw a velocity-time graph to show this information.

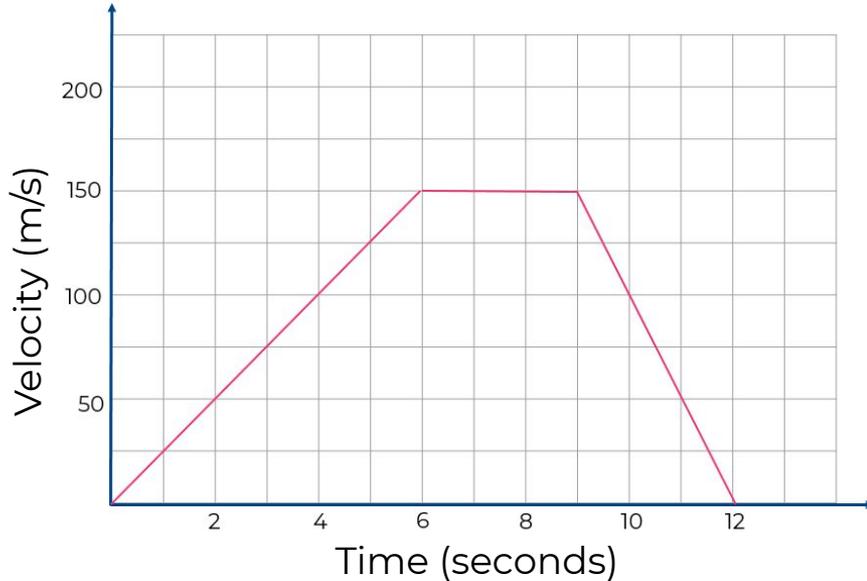


Answers



Velocity-time graphs

1. Here is the journey of a sports car.



a) What is the speed of the car after

i) 4 seconds? **100 m/s**

ii) 6 seconds? **150 m/s**

b) What is the maximum speed the car reaches? At what time does it reach this?

150 m/s at 6 seconds

c) How long is the car travelling at constant speed? **3 seconds**

d) For how long is the car travelling at or greater than 125 m/s?

$9.5 - 5 = 4.5$ seconds



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