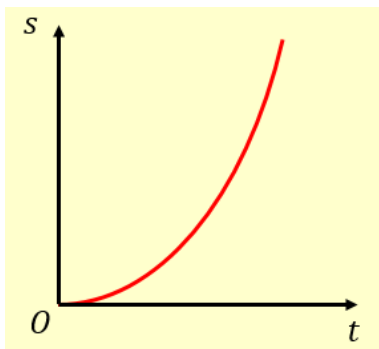
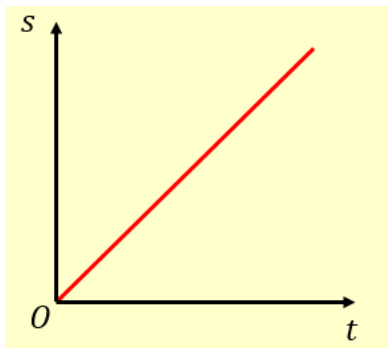
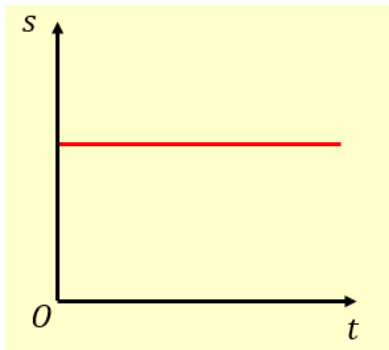
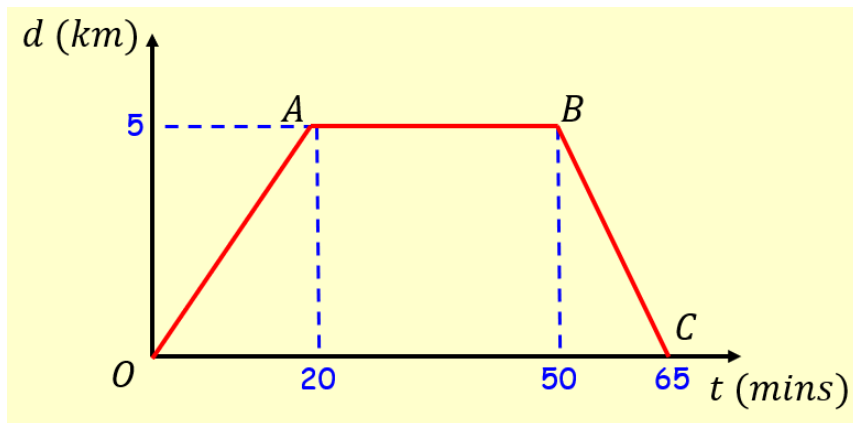


## 9A Time-Distance Graphs



1. A cyclist rides in a straight line for 20 minutes. She waits for half an hour, then returns in a straight line to her starting point in 15 minutes. Below is a displacement-time graph for her journey.

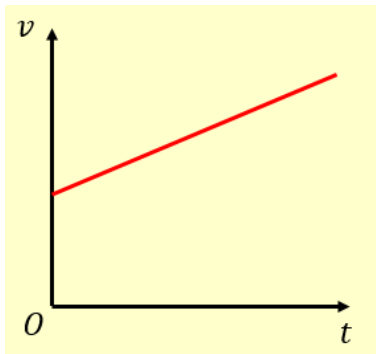
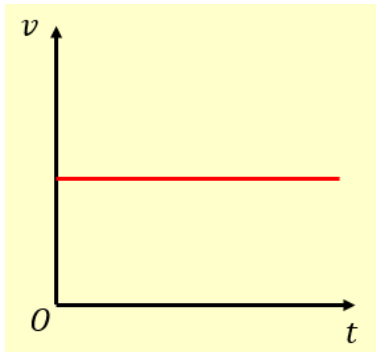
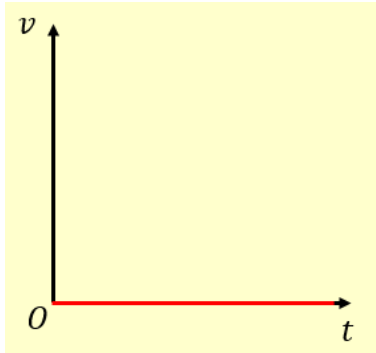


- a) Work out the average velocity for each stage of her journey, in  $\text{kmh}^{-1}$

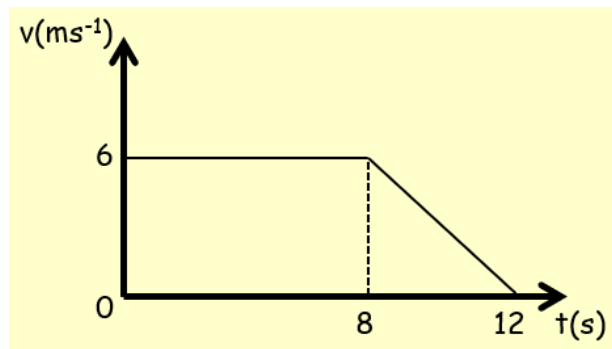
- b) Write down the average velocity for the whole journey

- c) Work out the average speed for the whole journey

## 9B Time-Speed Graphs



1. The diagram below shows a velocity-time graph for the motion of a cyclist moving along a straight road for 12 seconds. For the first 8 seconds, she moves at a constant speed of  $6\text{ms}^{-1}$ . She then decelerates at a constant rate, stopping after a further 4 seconds. Find:



- a) The distance travelled by the cyclist
- b) The rate of deceleration of the cyclist

2. A particle moves along a straight line. It accelerates uniformly from rest to a speed of  $8\text{ms}^{-1}$  in  $T$  seconds. The particle then travels at a constant speed for  $5T$  seconds. It then decelerates to rest uniformly over the next 40 seconds.

a) Sketch a velocity-time graph for this motion

b) Given that the particle travels 600m, find the value of  $T$