Distance-Time Graph Questions for GCSE Physics (ANSWERS)

1. What is plotted on the x-axis and y-axis of a distance–time graph?

X – axis is time (in seconds)

Y – axis is distance (or it can be displacement)

2. What does a horizontal line on a distance–time graph show about the motion of the object?

The object is stationary

3. What does the gradient of a distance–time graph represent?

The speed (or possibly the velocity)

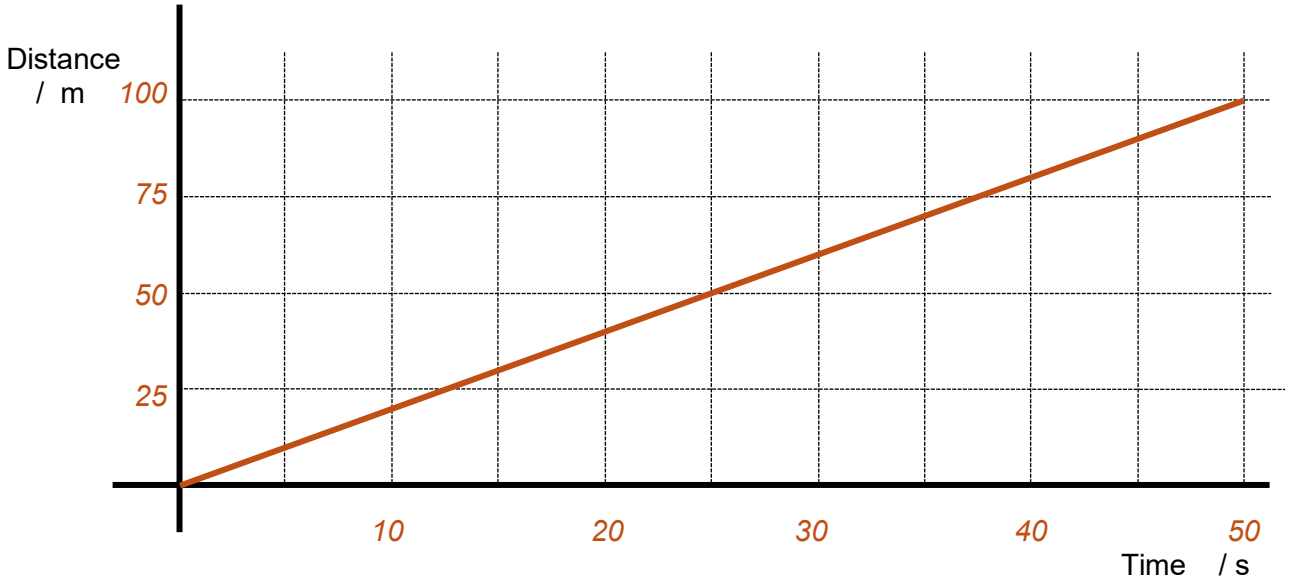
4. How is constant velocity shown on a velocity–time graph?

A horizontal line (or a gradient of zero)

5. What does a steep gradient mean about the speed of the object?

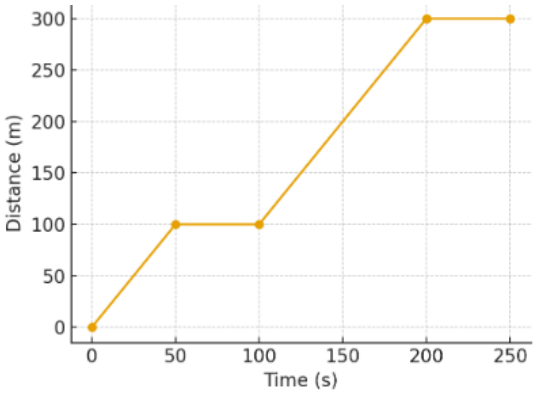
It is travelling quickly

6. A student walks 100 m in 50 s. Plot this motion on a distance–time graph and state their speed.



Speed = distance / time = 100 / 50 **= *2 m/s***

7. This graph shows someone walking a short distance.



a) What is the total distance travelled.

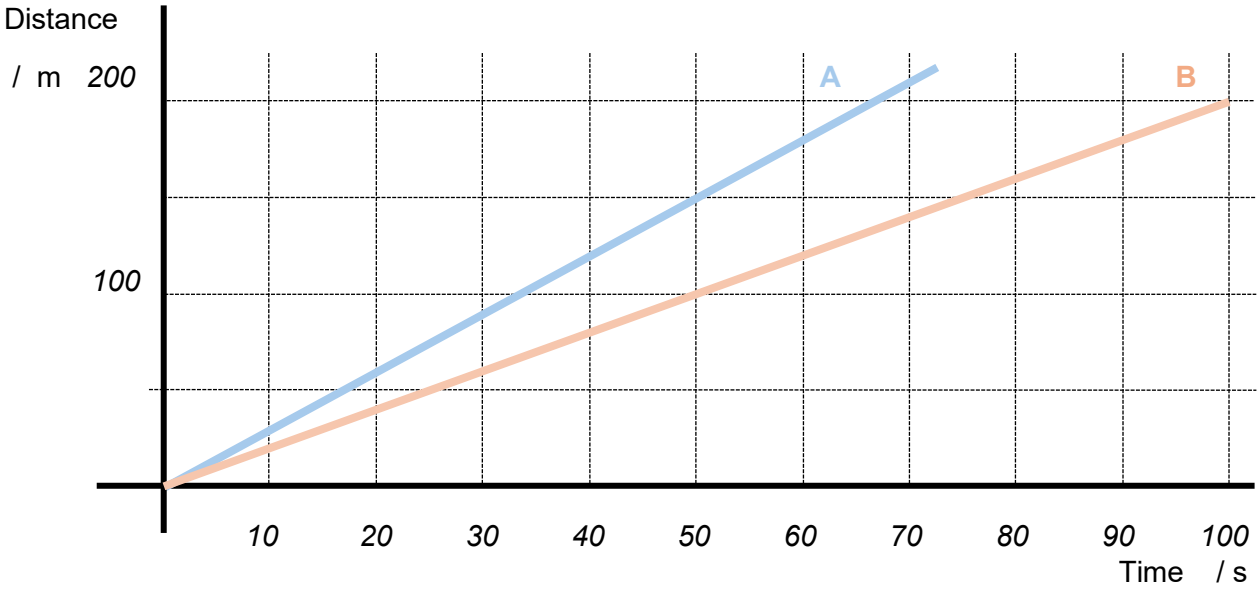
b) When was the walker stationary?

c) What was the speed of the walker between 100 and 200 seconds?

a) *300 m*

b) *Between 50 & 100 seconds <u>and</u> between 200 & 250 seconds*

c) *Speed = distance travelled / time taken = (300 – 100) / (200 – 100) = 200 / 100 =* ***2 m/s***



8. Take a look at the graph above. Which object, *A* or *B*, is travelling the fastest?

A – it has a steeper gradient

9. Using the same graph, calculate the speed of both objects.

For A: gradient = 150 / 50 = ***3 m/s***

For B: gradient = 100 / 50 = ***2 m/s***

10. Which object has travelled the furthest after 50 seconds? How much further has it travelled?

A has travelled further. A has travelled 150m, B has travelled 100m, so A has travelled ***50m*** *further.*