

Name: _____

GCSE Further Maths



Displacement-time Graphs Corbettmaths

Ensure you have: Pencil, Ruler, Pen, Calculator

Guidance

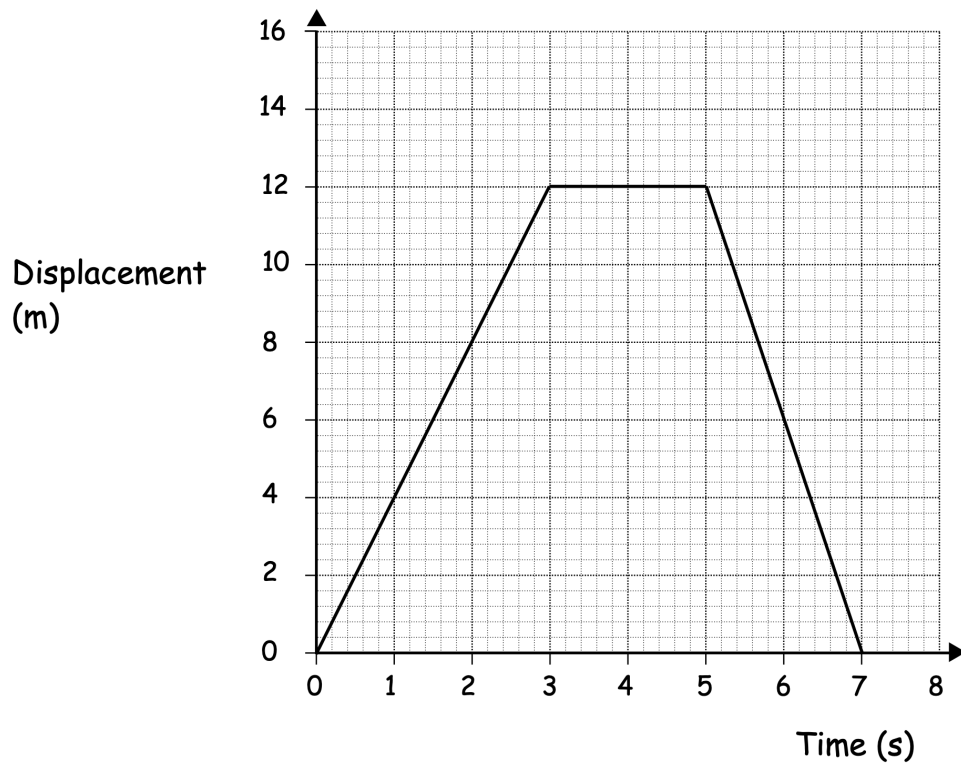
1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

www.corbettmaths.com/gcse-further-maths

1. Harry walks from his car to a post box in a straight line. He posts a letter and then walks back to his car.

The displacement–time graph shows the displacement of Harry from his car throughout the journey.



- (a) How far is the post box from his car?

.....m
(1)

- (b) Work out Harry's speed when walking from the car to the post box.

.....m/s
(1)

(c) How long was Harry stationary while at the post box?

.....seconds
(1)

(d) Work out Harry's speed when walking from the post box to the car.

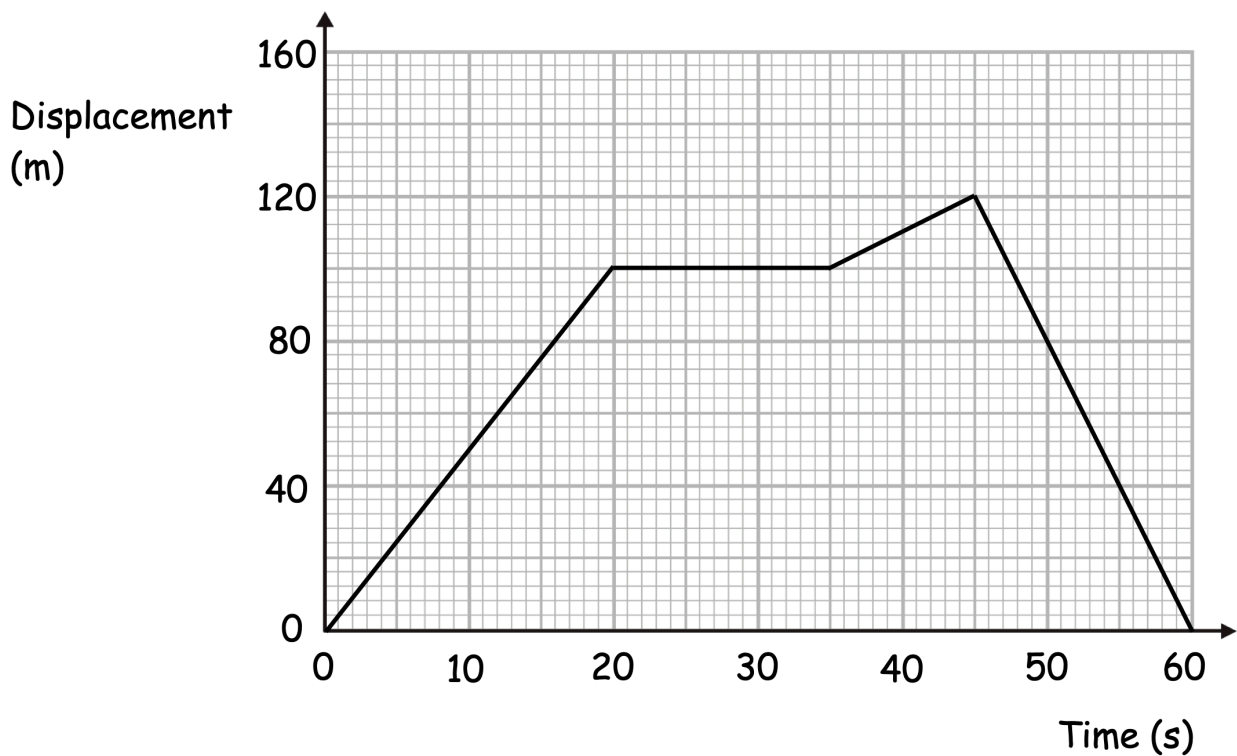
.....m/s
(1)

(e) How far did Harry walk altogether?

.....m
(1)

2. A body is travelling in a straight line.

The displacement–time graph shows the displacement of the body from the starting point throughout the journey.



- (a) Work out the velocity of the body over the first 20 seconds.

.....m/s
(2)

- (b) How long was the body stationary?

.....seconds
(2)

- (c) Work out the velocity of the body over the last 15 seconds of the journey.

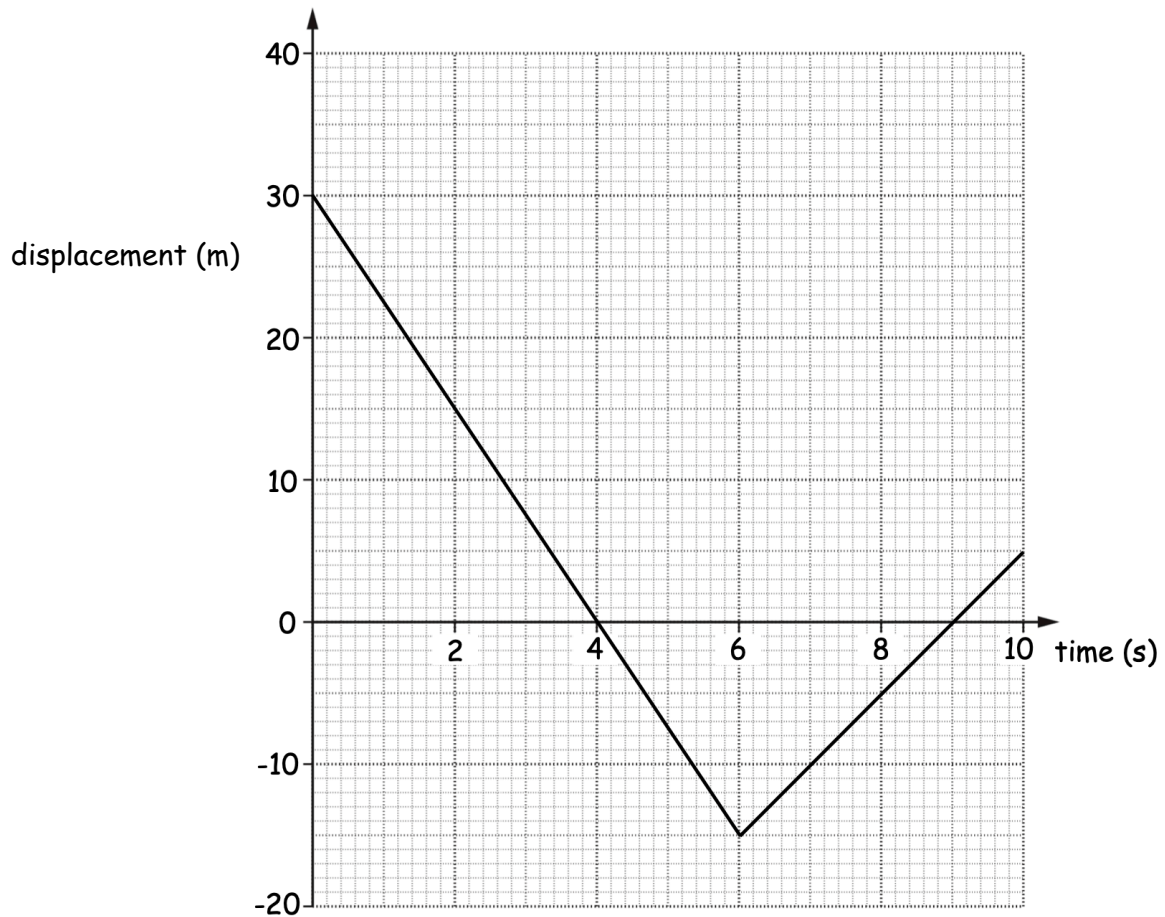
.....m/s
(2)

(d) How far did the body travel in total?

.....m
(2)

3. An object is travelling along a straight road.

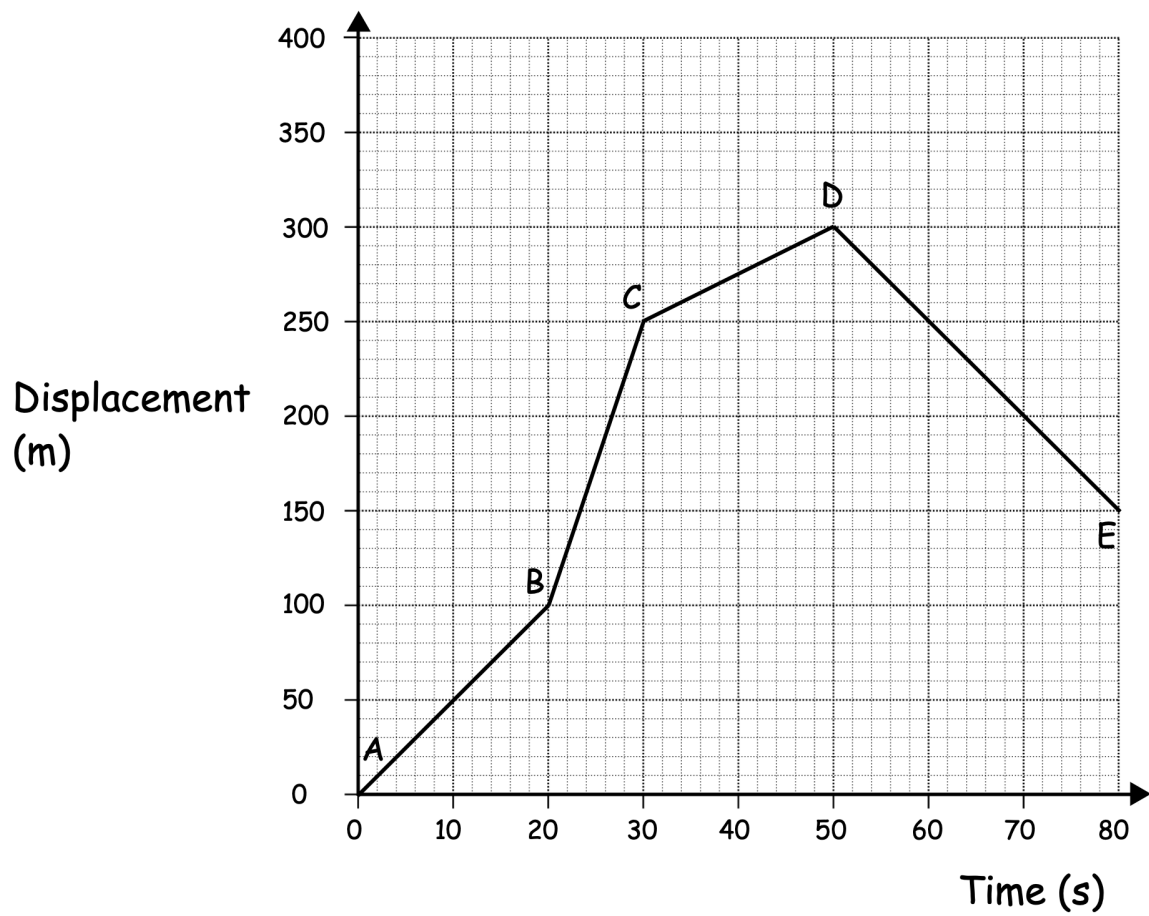
The displacement-time graph shows the displacement of the object from a line on the road, over a 10 second period.



Work out the total distance travelled by the object.

.....m
(1)

4. The displacement–time graph shows the motion of an object along a straight road.



- (a) Between which two points did the object have the slowest speed?
Explain your answer.

.....

.....

.....

.....

(2)

(b) Work out the speed of the object between D and E.

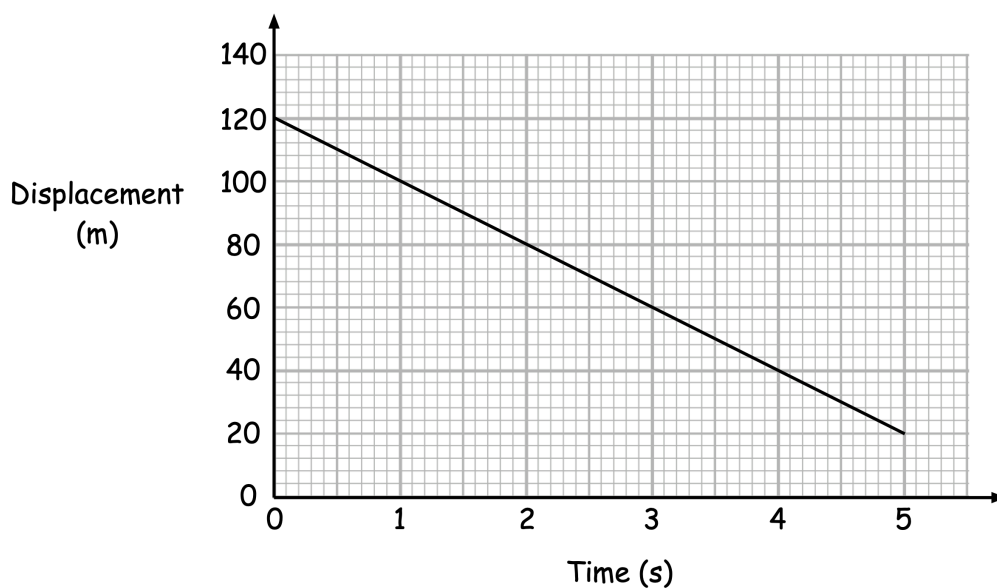
.....m/s
(2)

(c) Calculate the average speed of the object over the journey from A to E.

.....m/s
(2)

5. Rosa cycles along a straight road for 5 seconds.

The displacement-time graph shows information about her journey.



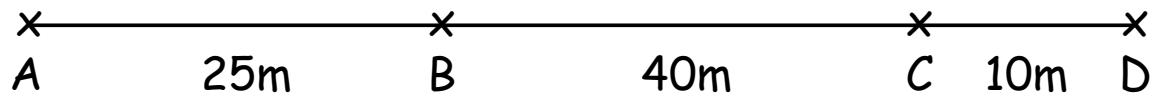
Rosa says that her speed was -20m/s .

Explain why Rosa is incorrect

.....
.....

(1)

6. A particle travels along a straight line, ABCD.



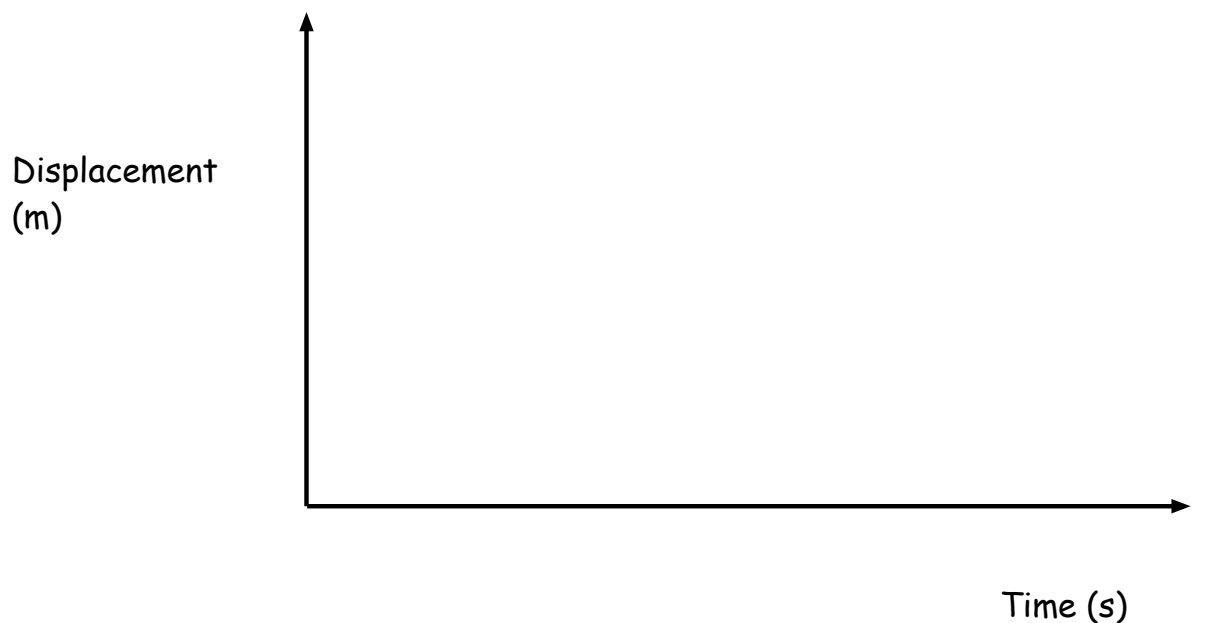
The particle starts at A and travels to C, at a constant speed, over 20 seconds.

The particle stops for 15 seconds and then travels to D at a speed of 2m/s.

The particle then travels to B at a constant speed.

The entire journey lasts 60 seconds.

- (a) Draw a displacement–time graph for this journey.



(2)

- (b) Work out the average speed of the particle for the entire journey.

.....m/s
(2)

7. The points O and A are on a straight line.

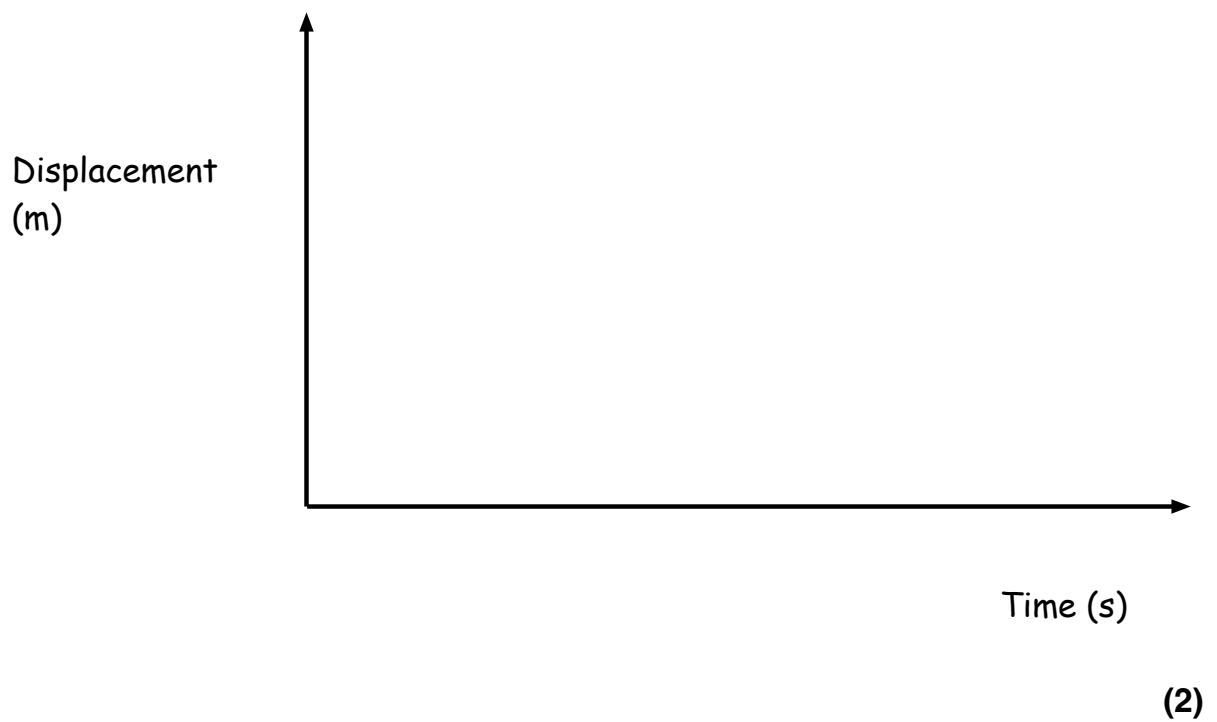
A particle travels from O to A, at a constant velocity.

The particle then travels from A back to O, at a constant velocity.

The journey from O to A takes twice as long as the journey from A to O.

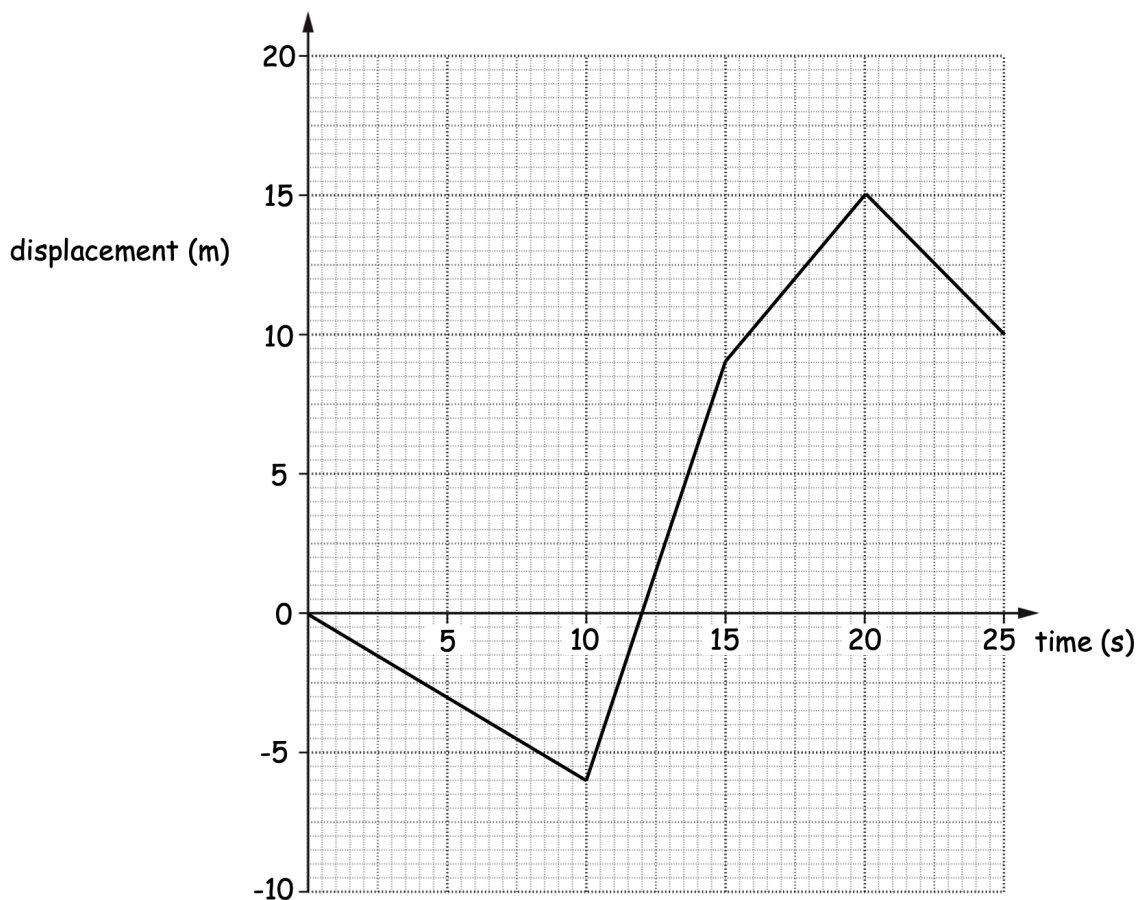
The entire journey lasted 36 seconds and the particle travelled a total distance of 240m.

Draw a displacement–time graph for this journey.



8. A remote control car travels along a straight track.

This displacement-time graph shows information about its journey over 25 seconds.



- (a) Work out the average speed of the remote control car for the entire journey.

.....m/s
(3)

- (b) Work out the average velocity of the remote control car for the entire journey.

.....m/s
(1)