

## Lesson 5: Displacement-Time Graphs

### Displacement Time graphs

Yr 10 Physics

1

### Lesson Objective

- By the describe and graph: Displacement-time graphs

2

### Displacement-time graphs

- Displacement graphs are similar to distance graphs however the displacement graph shows how the position of the object changes compared to where it started.
- Displacement graphs tell more of a 'story'.

3

Figure 8.1.11 This graph indicates that Mitsu has travelled out and then returned to her starting point.

Just like in a distance graph, when the line goes flat the object has stopped moving and is not longer travelling any distance.

Mitsu walks 400 m to Lachlan's house in 2 hours. She stays here another 2 hours. She returns home in the final hour.

### Make your own story!

### Matching Activity (next pages)

- Find the story that matches the graph.
- Put the story in the right order to match what happens in the graph.
- Label the graph with the correct letter for the matching part of the story.

### For Example:

For graph A, the first 4 seconds, 10 meters is travelled.

Then there is a rest for 4 seconds.

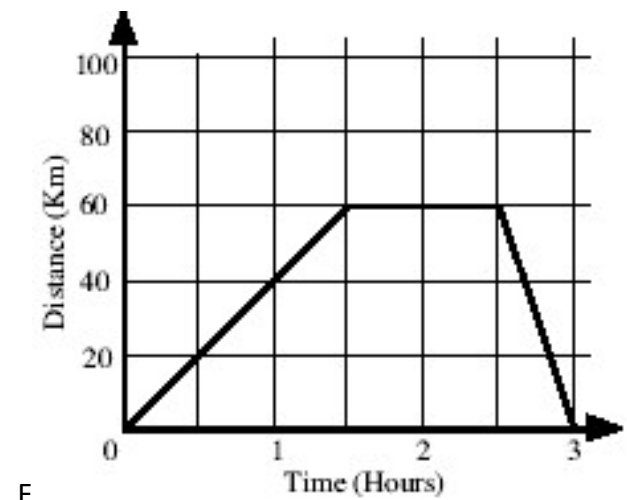
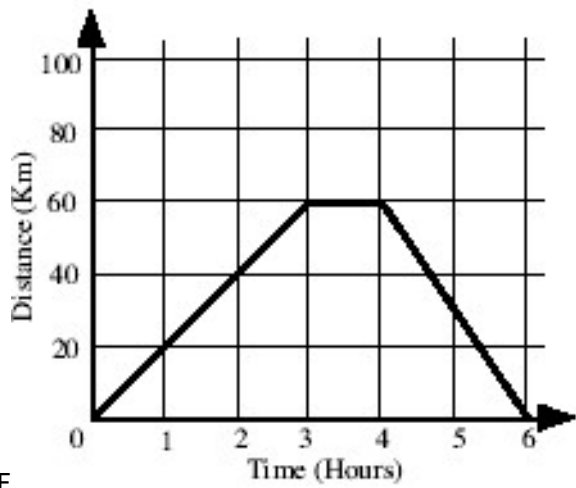
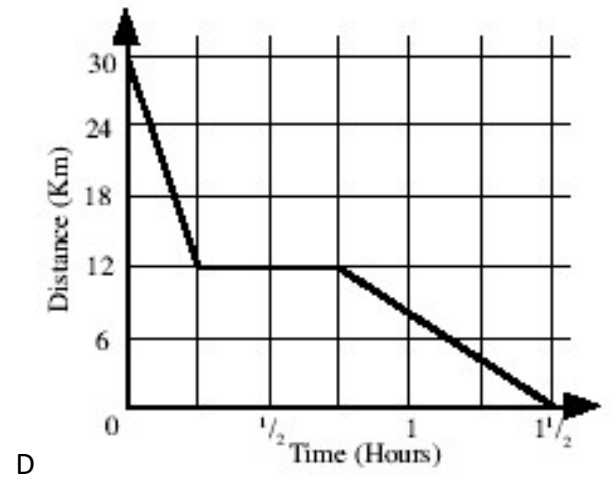
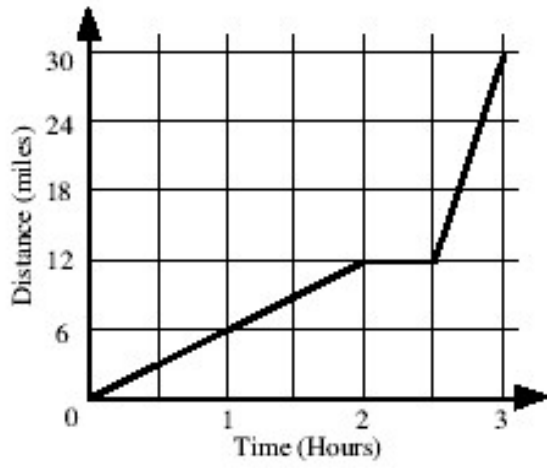
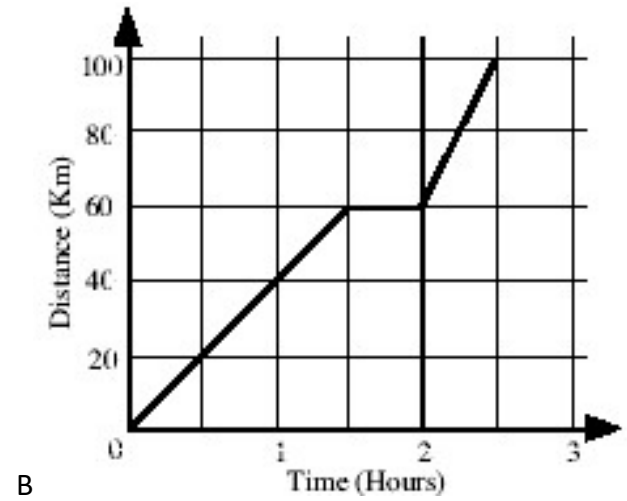
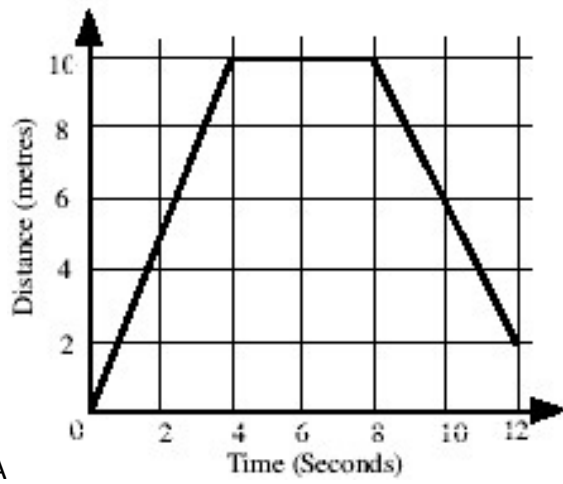
In the last 4 seconds, 8 meters is travelled.

### This has to be scenario 4

Tommy riding his bike

The statements are in the right order, but they won't always be!!

## Graphs



## Matching Stories

### 1 Elvis is driving.

- A. Elvis stops for an hour.  
-----
- B. Elvis returns home travelling 60 kilometres in 2 hours.  
-----
- C. Elvis takes 3 hours to drive to his friend's house 60 kilometres away.

### 2 Nora is cycling.

- A. Finally, Nora cycles towards home uphill for 12km at a slower pace.  
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- B. Nora stops at the bottom of the hill for half an hour for a drink.  
-----
- C. Nora cycles towards home downhill for 18km, over 15 minutes.

### 3 John cycles away from home.

- A. John stops to rest for 30 minutes.  
-----
- B. John cycles uphill for 2 hours travelling across 12 miles, away from home.  
-----
- C. John cycles downhill for away from home for 18miles in half an hour.

### 4 Tommy is riding his bike.

- A. Tommy rides his bike up the pavement away from home for 10 metres, over 4 seconds.  
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- B. Tommy takes 4 seconds to turn around.  
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- C. Tommy hits a bump and falls off his bike when he is 2metres from home

### 5 A coach journey.

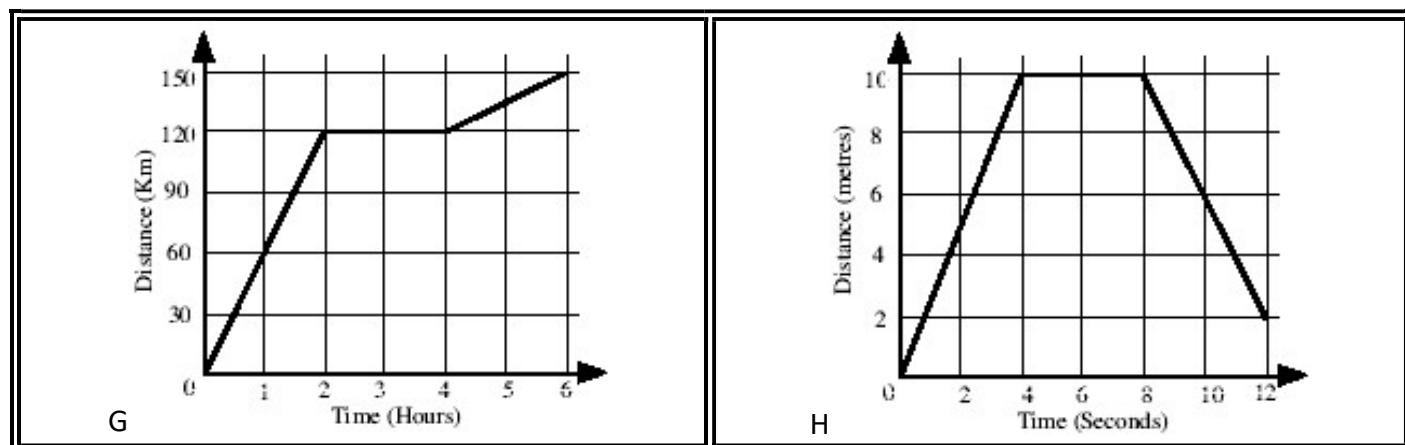
- A. The coach stops for half an hour.  
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- B. The coach travels for 30 minutes and reaches Worcester 40 km later.  
-----
- C. The coach leaves the station at and travels 60km, over 1 ½ hours.

### 6 A bus journey.

- A. The bus travels back to school and arrives back at midday.  
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- B. A bus leaves school at 9am and gets to its destination at 10.30am.  
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- C. The children look around the museum for an hour

### Extension:

Describe each journey in the real life graphs below. Choose what they could be about.



### Journey G

### Journey H

### Drawing a Real Life Graph

Use the grid below to draw a graph of Fred's train journey:

- Fred goes on a train 1 hour, from Hull to Leeds, covering 96km.
- Fred stops in Leeds and sits down in a cafe for 3 hours, talking to his Grandma.
- Fred returns to Hull on a slow train taking 2 hours.

