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Student worksheet

7.1 Displacement is change in position with direction

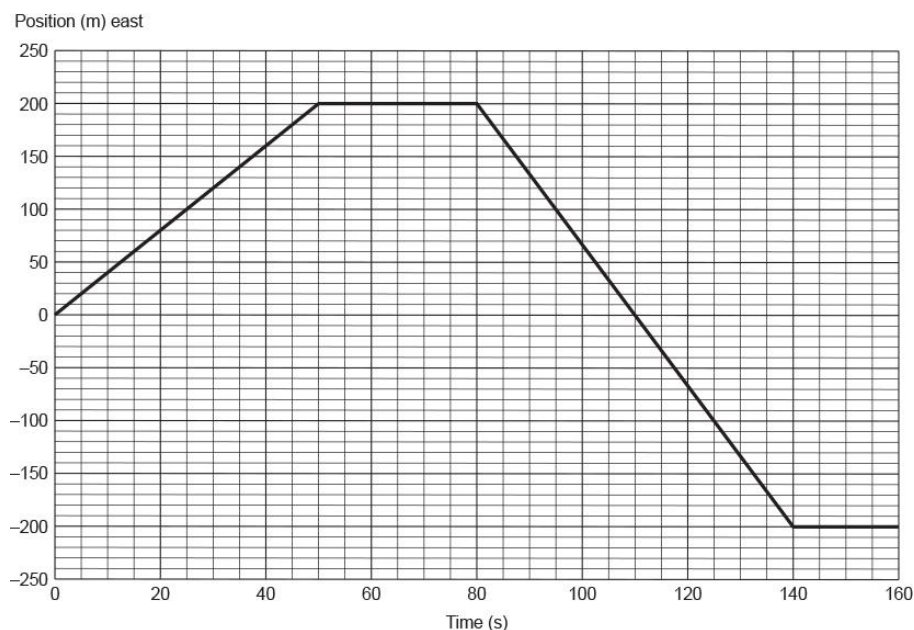
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Distance and displacement

- 1 Complete the second column of the table below, showing your understanding of the key terms on the left. Once you have finished, discuss with a peer, recording their understanding in the third column. Finally, check your answers with your teacher or the Student book by using the glossary at the end.

Key term	My understanding of this word	My peer's understanding of this word	Actual definition
Distance			
Displacement			
Scalar quantity			
Vector quantity			

A girl riding her skateboard completed the journey shown by the graph below.





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2 Describe the girl's motion as indicated by each of the different sections on the graph.

3 How far did the girl travel in 160 seconds? Give your answer in metres.

4 What was the girl's displacement at each of the following times?

a $t = 50$ seconds

b $t = 110$ seconds

c $t = 150$ seconds



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- 5 What does the shape of the graph between $t = 0$ and $t = 50$ seconds suggest about the girl's motion? Explain your answer.

A brother and sister arrived with their parents at a hotel that, below the foyer on the ground floor, had three levels of underground car parking. Above the foyer were 12 floors of guest rooms. While their parents were checking the family into the hotel, the two siblings snuck off to 'ride' in one of the lifts. From the hotel foyer, they rode the lift up 9 floors, then down 11 floors, up 5 floors and finally down 5 floors.

- 6 On which floor did the two siblings finish their elevator ride?

- 7 How many floors did they pass through on their journey?

Extend your understanding

From a campsite, a hiker walked 12 kilometres north and 5 kilometres west. She then walked 4 kilometres south and 20 kilometres east.

- 8 In the space provided below, carefully draw the journey taken by the hiker. Use a scale of 0.5 centimetre = 1.0 kilometre. Draw a line from the hiker's campsite to where her journey finished.



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- 9 Without using a ruler or protractor, determine the hiker's final displacement.