

0	1
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A physical quantity may be classified as being either a scalar or a vector.

0	1	.	1
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Explain the difference between a scalar and a vector.

A scalar has magnitude only [1].

A vector has both magnitude and direction [1].

0	1	.	2
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The below table lists a number of physical quantities.

For each of these quantities, place a tick (✓) in the appropriate column to indicate whether it is a scalar or a vector.

Quantity	Scalar	Vector
Energy	✓	
Temperature	✓	
Force		✓
Pressure	✓	
Acceleration		✓
Time	✓	
Displacement		✓
Momentum		✓
Velocity		✓
Speed	✓	
Distance	✓	
Mass	✓	

Half a mark per correct answer, round down final score. In other words, all answers correct for 6 marks, 11 answers correct for 5 marks etc.

0	2
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Natasha completes a 100 m sprint, then walks from the finishing line back to the starting line to try and beat her previous time.

0	2	.	1
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What distance did she travel in total?

Distance = 200 m

0	2	.	2
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What was her displacement from her starting position after she had completed her sprint?

Displacement = 100 m

0	2	.	3
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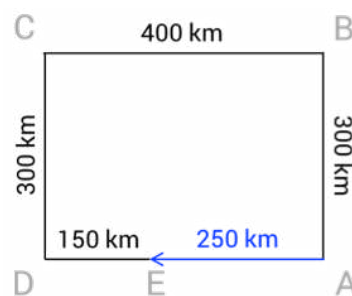
What was her displacement from her starting position once she had walked back to the starting line?

Displacement = 0 m

0	3
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A cargo plane makes four stops on a given day. It takes off from Awesometown and travels 300 km north to deliver some goods to Brilliant City, refuelling whilst on the ground. It then flies 400 km west and lands at Coolington to pick up some more goods, before travelling a further 300 km south towards Dreamsville. Its final stop of the day is at Excellentown, which is 150 km due east of Dreamsville.

Determine, by diagram or otherwise, the displacement of Excellentown **from** Awesometown.



Displacement = 250 km

Direction = west