

Velocity Practice

- 1 They cycled towards the beach at 11 m/s.

Fill in the blanks in these sentences. Use the words **speed**, **direction** and **velocity**.

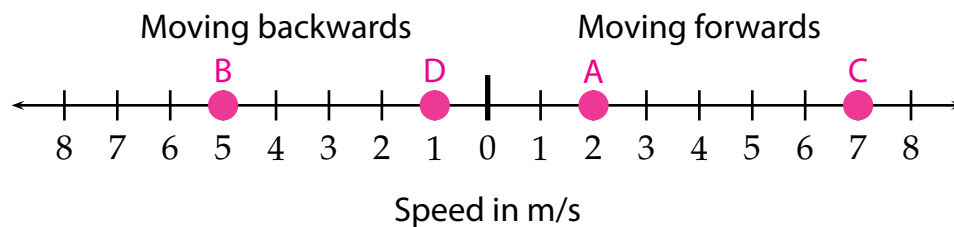
The _____ is 11 m/s.

The _____ is towards the beach.

The _____ is towards the beach at 11 m/s.

- 2 Tick or cross to show in each case whether you know the speed, the direction and/or the velocity. In some rows you will need to make more than one tick.

Description	Speed	Direction	Velocity
The ship sailed south.			
The jogger ran at 3 m/s.			
The truck drove towards Leeds at 60 mph.			
The airship flew 50 km west.			
The rocket climbed at 2000 m/s.			
The car reversed into the parking space.			



- 3 Complete the table to show the speeds, directions and velocities labelled on the scale.

Label	Speed	Direction	Velocity
A	2 m/s	Forwards	2 m/s forwards
B			
C			
D			

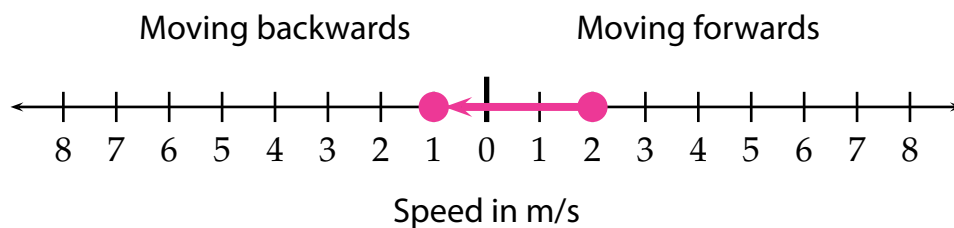
4 A child falls down onto a trampoline at 1.5 m/s. They bounce up at 1.2 m/s.

(a) Has the child's speed changed?

(b) Has the child's velocity changed?

(c) If the child bounced up at 1.5 m/s would their velocity have changed?

5 A shopper moves a trolley forwards at 2 m/s. They then reverse it at 1 m/s. The velocities are shown on this scale. The arrow shows the velocity change.



The velocity change is 3 m/s backwards (the length of the arrow).

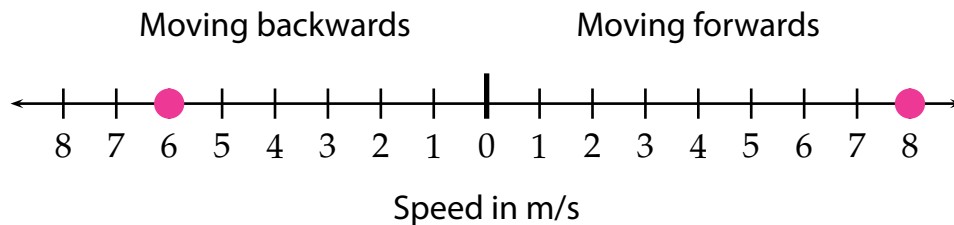
(a) What was the old speed?

(b) What is the new speed?

(c) How much has the speed changed?

(d) Is the speed change the same as the velocity change?

6 A tennis ball is hit forwards at 8 m/s. It bounces off a wall and then moves at 6 m/s backwards. The velocities are shown on this scale.

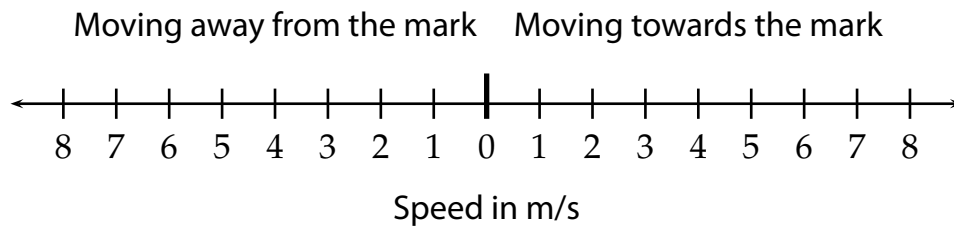


(a) Draw the velocity change as an arrow.

(b) What is the velocity change?

(c) How much has the speed changed?

- 7 During circuit training, a cadet runs towards a mark at 5 m/s. They reach the edge, turn round and run back at the same speed.



- (a) Mark the old and new velocities on the scale
- (b) Mark the velocity change on the scale.
- (c) What is the velocity change?

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- 8 Calculate the velocity change in each case.

- (a) A cyclist slows down from 12 m/s to 3 m/s on a straight road.
- (b) A fork-lift truck on a straight path was moving forwards at 0.6 m/s. It then picked up a load and reversed at 2.4 m/s.
- (c) A plate hits the floor at 5 m/s and stops.
- (d) A balloon rises at 0.5 m/s but later bursts and falls at 2.5 m/s.

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- 9 A dancer throws a baton upwards at 3 m/s. Just before it is caught it is falling at 3 m/s.

- (a) What is the velocity change?
- (b) What is the change in speed?

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- 10 A customer on a fairground ride goes round in a circle at 13 m/s. Does their velocity change as they go round the circle? Explain your answer.