

IB Physics (Ms. Grant)
Representing Motion (Ch. 2) : Exam #2

Objective: **SWBAT represent, describe, and analyze motion.**

Topics:

- Motion diagrams (pictorial, particle model, graphical)
- Scalar vs. Vector
- Position (distance vs. displacement)
- Average Velocity
- Average Speed
- Position vs. Time Graph

A quantity that has both size (magnitude) and direction.

A Scalar

B Vector

A quantity that is just a number value without direction

- A Scalar
- B Vector

Distance is a _____.

- A Scalar
- B Vector

Displacement is a _____.

A Scalar

B Vector

Velocity is a _____.

A Scalar

B Vector

Speed is a _____.

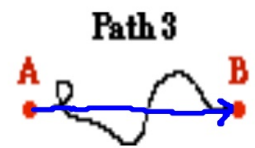
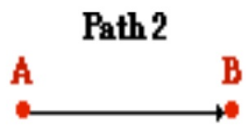
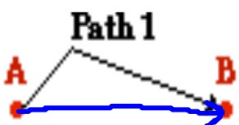
- A Scalar
- B Vector

True or False: An object can be moving for 10 seconds and still have zero displacement.

- A True
- B False

Suppose that you run along three different paths from location A to location B. Along which path(s) would your distance traveled be different than your displacement?

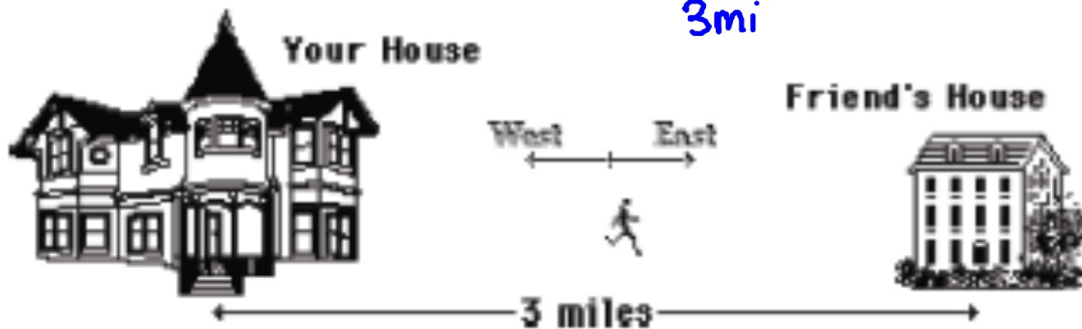
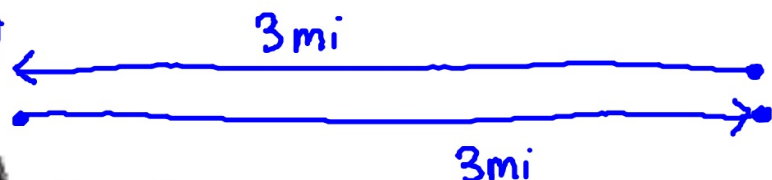
- 1 Path 1
- 2 Path 2
- 3 Path 3



You run from your house to a friend's house that is 3 miles away. You then walk home. What distance did you travel?

- A 0 mi
- B 3 mi
- C 6 mi
- D -6 mi

$$3\text{ mi} + 3\text{ mi} = 6\text{ mi}$$

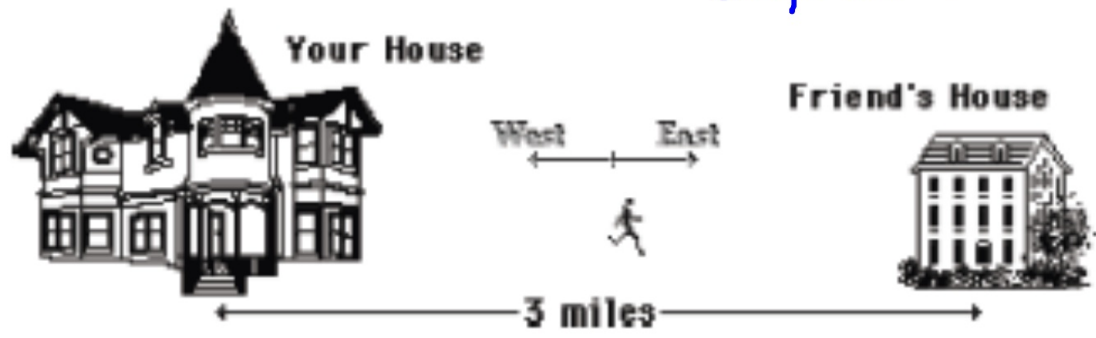


You run from your house to a friend's house that is 3 miles away. You then walk home. What was the displacement for the entire trip?

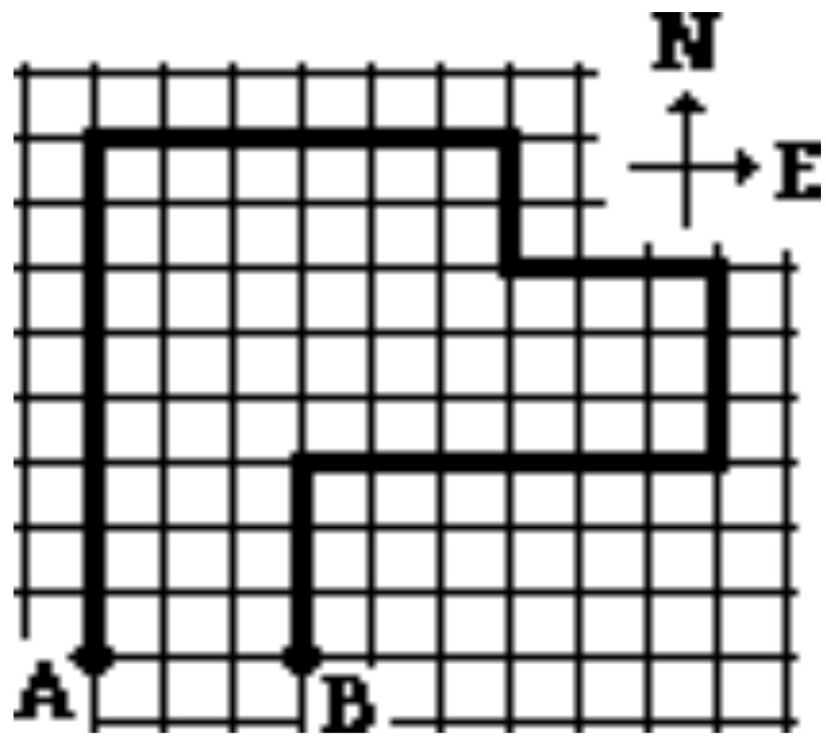
- A 0 mi
- B 3 mi
- C 6 mi
- D -6 mi

x_f
 x_i

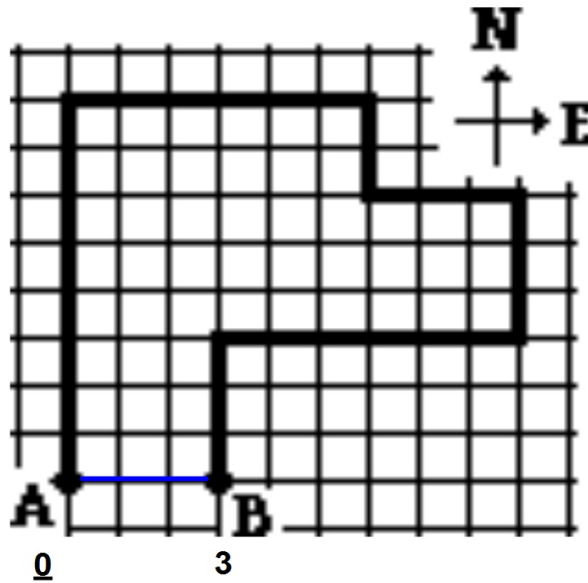
$x_i = x_f \Rightarrow \Delta x$
 displacement = 0



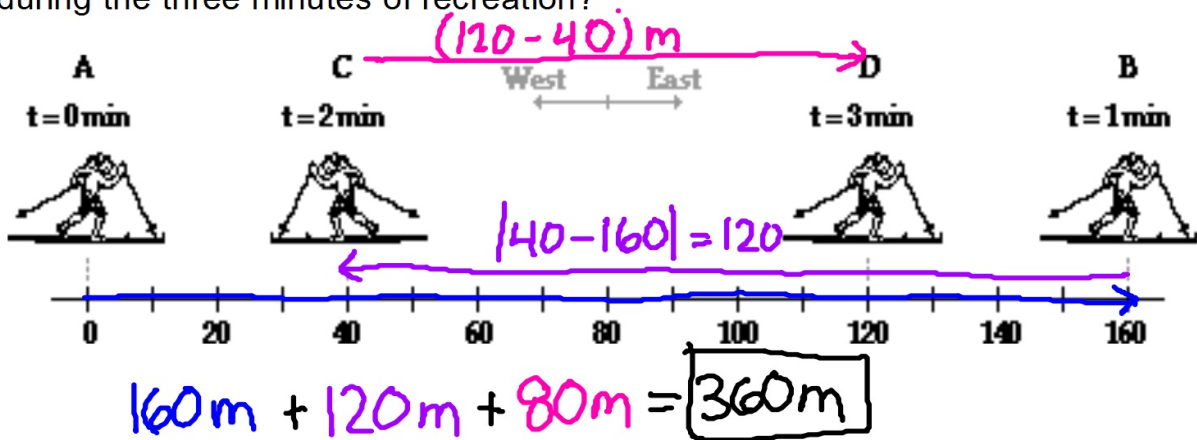
Observe the diagram below. A person starts at A, walks along the bold path and finishes at B. Each square is 1 km along its edge. This person walks a distance of 31 km.



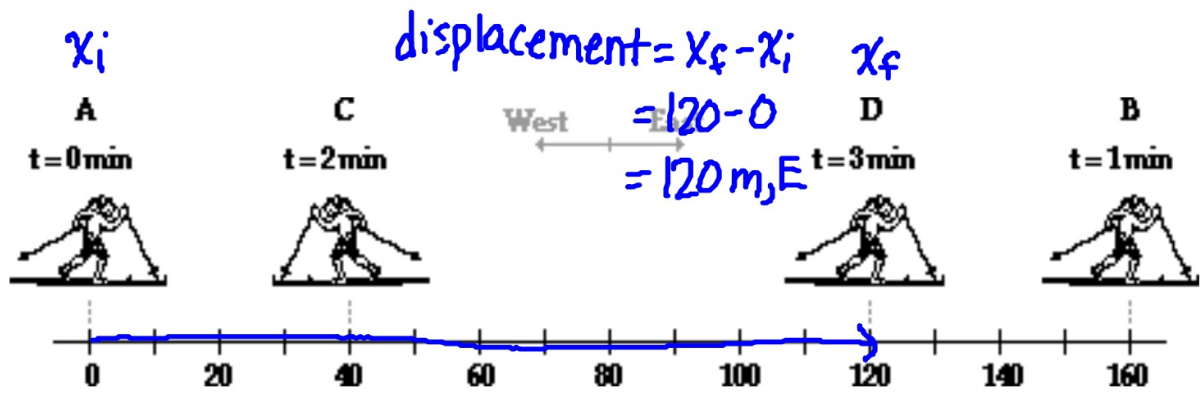
Observe the diagram below. A person starts at A, walks along the bold path and finishes at B. Each square is 1 km along its edge. This person has a displacement of 3 km.



A cross-country skier moves from location A to location B to location C to location D. Each leg of the back-and-forth motion takes 1 minute to complete; the total time is 3 minutes. (The unit is meters.) What is the distance traveled by the skier during the three minutes of recreation?



A cross-country skier moves from location A to location B to location C to location D. Each leg of the back-and-forth motion takes 1 minute to complete; the total time is 3 minutes. (The unit is meters.) What is the net displacement of the skier during the three minutes of recreation?

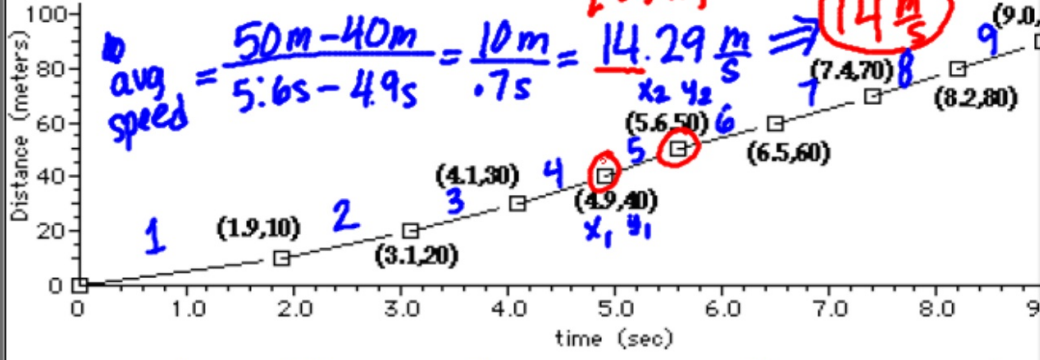


$$\text{Ave. Speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{Ave. Velocity} = \frac{\text{displacement}}{\text{time}}$$

$$\bar{v} = \frac{x_f - x_i}{t_f - t_i} = \frac{\Delta x}{\Delta t}$$

10. The graph below shows Donovan Bailey's split times for his 100-meter record breaking run in the Atlanta Olympics in 1996.



a. At what point did he experience his greatest average speed for a 10 meter interval?

Vote Results

Horizontal Bar Graph

Value	Percentage
0.7	10.0%
1.4	5.0%

Enter a Number