

Kinematics

Studies _____ without thinking about its _____

Position (x)

The _____ where something is relative to a _____ system called a _____
 The most common coordinate system the _____ coordinate system

Displacement (Δx)

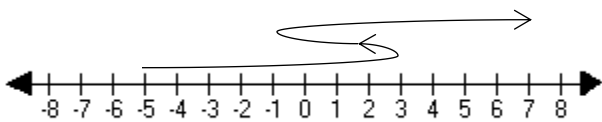
The change in position

Has _____ and _____

Path does _____ matter

Only _____ and _____ position matters

What is the displacement of the path in the diagram?



Distance

The _____ of the path traveled

Has only _____

You drive 20 km east, then turn around and drive 15 km west. What is your displacement?

What was your distance traveled?

Homework

1. What was difficult about measuring the 3x5 card? Why?
2. How are distance and displacement the same? How are they different?
3. How are scalars and vectors the same? How are they different?
4. Classify each measurement as a scalar or vector.

a. ____ 20 books on a shelf	f. ____ In an experiment, a toy car moves -15 cm
b. ____ A car travels 25 km east	g. ____ In an experiment, a mouse moves +20 cm
c. ____ A plane flies 500 km	h. ____ The temperature is -5 °C
d. ____ The car drives 100 km/h west	
e. ____ The plane flies 200 mph north	
5. The road I live on goes east and west. One day, my family and I decide to go west to the beach. I travel 2 miles west when my wife realizes we passed a flock of wild turkeys. I turn around and drive back 1/2 miles before we find the turkeys. What is my displacement at the flock of turkeys (make west negative)? (RW) **-1.5 miles**
6. What is the distance I traveled to where I stopped by the turkeys? (RW) **2.5 miles**
7. Find the following for path A in the diagram: (a) The distance traveled. (b) The magnitude of the displacement from start to finish. (c) The displacement from start to finish. (OpenStax 2.1) **7 m, 7 m, 7 m**
8. Find the following for path B in the diagram: (a) The distance traveled. (b) The magnitude of the displacement from start to finish. (c) The displacement from start to finish. (OpenStax 2.2) **5 m, 5 m, -5 m**
9. Find the following for path C in the diagram: (a) The distance traveled. (b) The magnitude of the displacement from start to finish. (c) The displacement from start to finish. (OpenStax 2.3) **13 m, 9 m, 9 m**
10. Find the following for path D in the diagram: (a) The distance traveled. (b) The magnitude of the displacement from start to finish. (c) The displacement from start to finish. (OpenStax 2.4) **8 m, 4 m, -4 m**

