Chapter 11.1 Notes: Distance & Displacement

December 2, '14

Frame of Reference

- Your motion is relative (compared to something)
  - Driving a car example
- We use Earth as our F.O.R.

Distance vs. Displacement

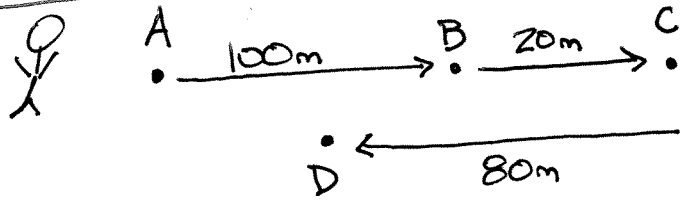
- Distance: Length of the path between 2 points: Total length traveled
- Displacement- Direction from the starting point and the length of a straight line from starting point to end point.
- Talking Example: I walk 2 feet forward ⇒ 2 feet For ⇒ 2 ft Back.
- N, E, S, W Room Example: (Pencil on floor)

	Dist.?	Disp.?
Examples ⇒ ①	Dist. = 2	Disp. = 2
②	Dist. = 2	Disp. = 0
③	Dist. = 4	Disp. = 0
④	Dist. = 6	Disp. = 2

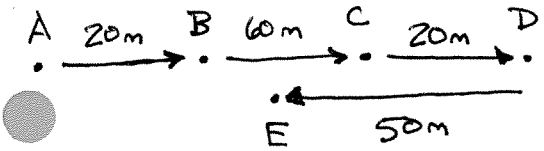
Dt. A → B = 100m
Dt. B → C = 20m
Dt. A → C = 120m
Dp. A → C = 120m

Dt. A → D = 100+20+80 = 200m
Dp. A → D = 100+20-80 = 40m

Example 1A:



Example 1B:



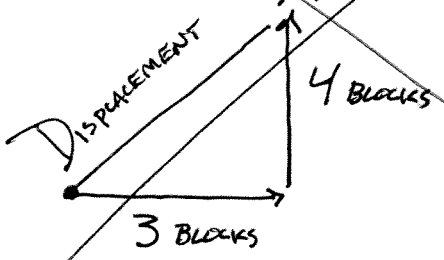
Dist: [redacted] = 80
Dip. A → C = 80
Dist: B → C = 60
Dip. B → C = 60

Dist: A → D = 100
Dip A → D = 100
Dist. A → E = 150
Dip. A → E = 50

Example 2: (like pg. 331)

→ Disregard Example 2

Walking to school



Distance = 3 + 4 = 7 blocks

Displacement = $a^2 + b^2 = c^2$

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$\sqrt{25} = c$

$c = 5$ blocks

⇒ Displacement

Example 3A:

I travel 2m South, then 6m North, then 11m [redacted] South.
What is my Dist. & Disp.?

Distance = 2 + 6 + 11 = 19m

Displacement = 2 − 6 + 11 = 7m South

Example 3B:

You travel 3m West, then 5m East, then 10m West, then 6m East. What is your Disp. & Dist?

Distance = 3 + 5 + 10 + 6 = 24m

Displacement = 3 − 5 + 10 − 6 = 2m West