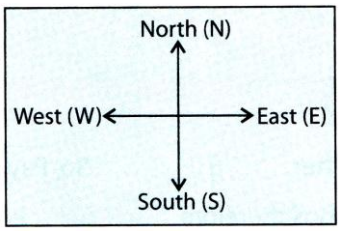
MAIN DIRECTIONS

There are four main directions viz. East, West, North and South. East and West as well as North and South are opposite to each other as shown below.



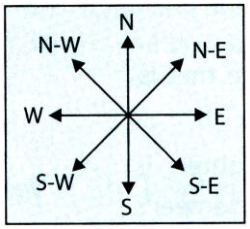
The sun always rises in the East and sets in the West.

Four Other Directions:

There are four other directions which lie in between the four main directions.

These are: North-East (N-E); North-West (N-W); South-East (S-E); South-West (S-W).

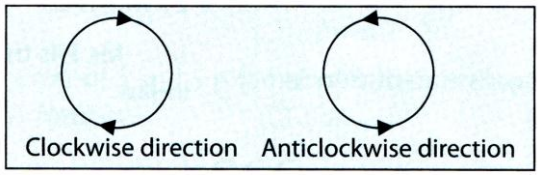
Let us show these four directions with the main four directions on a plane paper.



Two Cyclic Directions:

There are two cyclic directions namely clockwise and anti-clockwise.

The direction of moving as clock's hands is called clockwise direction while its opposite direction is called anti-clockwise direction as shown below.



EXAMPLE

Mohit walks 6 km to the East and then turns to the South and walks 5 km. Again he turns to the East and walks 6 km. Next, he turns northwards and walks 10 km. How far is he now from his starting point?

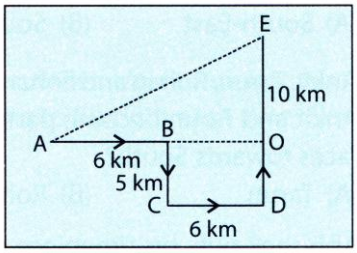
(a) 5 km (b) 12 km (c) 13 km (d) 17 km

Explanation (c):

Mohit starts from A and walks 6 km East upto B, turns southwards and moves 5 km upto C.

At C, he turns to the East and walks 6 km upto D.

He then turns northwards and walks 10 km upto E.



Now, draw BO and AE.

Clearly, BO = CD = 6 km

AO = (AB + BO) = (6 + 6) km = 12 km

$OE = (DE - OD) = (DE - BC)$

$= (10 - 5)\ km = 5\ km$

$\therefore$ Mohit's distance from the starting point A

$= AE = \sqrt{AO^2 + OE^2} = \sqrt{(12)^2 + (5)^2}$

$= \sqrt{169} = 13\ km$