

Chapter

6

Direction and Distance

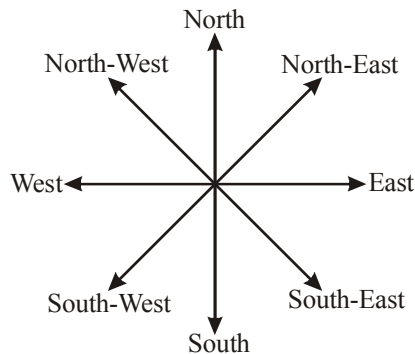
INTRODUCTION

This part of reasoning comes under the category of common sense reasoning. In fact, this segment gauges the sense of direction of a candidate.

CONCEPT OF DIRECTION

In our day to day life, we make our concept of direction after seeing the position of sun. In fact, this is a truth that sun rises in the East and goes down in the West. Thus when we stand facing sunrise, then our front is called East while our back is called West. At this position our left hand is in the Northward and the right hand is in the Southward. Let us see the following direction map that will make your concept more clear.

Direction Map



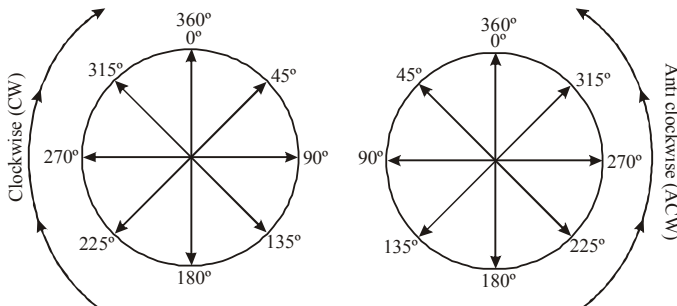
Shortcut Approach

To remember four main directions, always remember the word 'NEWS.'

Note: On paper North is always on top be while South is always in bottom.

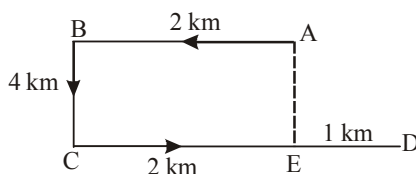
CONCEPT OF DEGREE

Let us see the following picture:



Remember

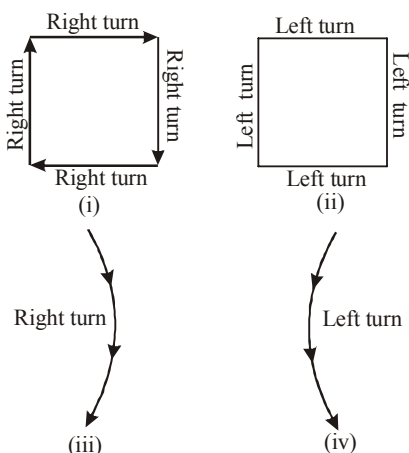
- Angle between two consecutive main directions is always 90° .
- Angle between two consecutive subdirections is always 90° .
- Angle between a main direction and a subdirection is always 90° .

**CONCEPT OF TURN**

Right turn = Clockwise turn

Left turn = Anticlockwise turn

Let us understand it through pictorial representation:



EXAMPLE 1. Raman walked 2 km West from his office and then turned South covering 4 km. Finally, he walked 3 km towards East and again move 1 km West. How far is Raman from his initial position.

Sol. Raman starts from his office A, moves 2 km West upto B, then 4 km to the South upto C, 3 km East upto D and finally 1 km West upto E, Thus his distance from the initial position $AE = BC = 4$ km.

Remember

- If our face is towards North, then after left turn our face will be towards West while after right turn, it will be towards East.
- If our face is towards South, then after left turn our face will be towards East and after right turn it will be towards West.
- If our face is towards East, then after left turn our face will be towards North and after right turn it will be towards South.
- If our face is towards West, then after left turn our face will be towards South and after right turn it will be towards North.
- If our face is towards North-West, then after left turn our face will be towards South-West and after right turn it will be towards North-East.
- If our face is towards South-West, then after left turn our face will be towards South-East and after right turn it will be towards North-West.
- If our face is towards South-East, then after left turn our face will be towards North-East and after right turn it will be towards South-West.
- If our face is towards North-East, then after left turn our face will be towards North-West and after right turn it will be towards South-East.

CONCEPT OF MINIMUM DISTANCE

Minimum distance between initial and last point

$$h^2 = b^2 + p^2$$

where,

h = Hypotenuse

b = Base

p = Perpendicular

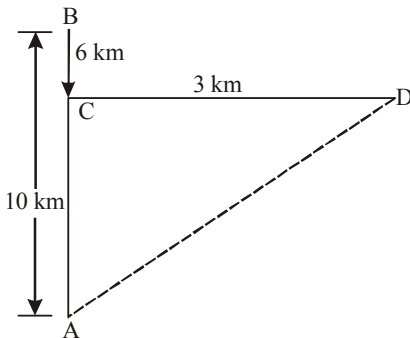
Remember this important rule is known as 'Pythagoras Theorem'

EXAMPLE 2. Rashmi walks 10 km towards North. She walks 6 km towards South then. From here she moves 3 km towards East. How far and in which direction is she with reference to her starting point?

Sol. It is clear, Rashmi moves from A 10 km Northwards upto B, then moves 6 km Southwards upto C, then turns towards East and walks 3 km upto D.

Then, $AC = (AB - BC) = 10 - 6 = 4$ km

$CD = 3$ km.



$\therefore$ Rashmi's distance from starting point A

$$\begin{aligned} AD &= \sqrt{AC^2 + CD^2} = \sqrt{4^2 + 3^2} \\ &= \sqrt{16 + 9} = \sqrt{25} = 5 \text{ km.} \end{aligned}$$

From figure, D is to the North-East of A.

SHADOW CASE

In Morning/Sunrise Time

- (a) If a person facing towards Sun, the shadow will be towards his back or in West.
- (b) If a person facing towards South, the shadow will be towards his right.
- (c) If a person facing towards West, the shadow will be towards his front.
- (d) If a person facing towards North, the shadow will be towards his left.

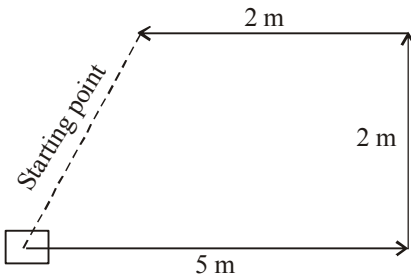
In Evening/Sunset Time

- (a) If a person facing towards Sun, the shadow will be towards his back or in East.
- (b) If a person facing towards North, the shadow will be towards his right.
- (c) If a person facing towards East, the shadow will be towards his front.
- (e) If a person facing towards South, the shadow will be towards his left.

Note : At 12:00 noon there is no shadow because the rays of the sun are vertically downward.

EXAMPLE 3. Early morning after sunrise, Rajesh was standing in front of his house in such a way that his shadow as falling exactly behind him. He starts walking straight and walks 5 m. He turns to his left and walks 3 m and again turning to his left walks 2m. Now in which direction is he from his starting point?

Sol. The shadow of Rajesh was falling exactly behind him. So, he was facing towards East. Diagram clearly shows that Rajesh was in North-East with reference to the starting point.



Shortcut Approach

- Draw four lines and write all directions on each edge of it same.
- Think the 'you' are standing at all arrow head facing outward from centre.
- Read the statement line by line.
- Move yourself as per statement asked and prepare a diagram as per line by line statement.
- Show, check and verify the direction and distance of you from starting point.

ebooks Reference

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