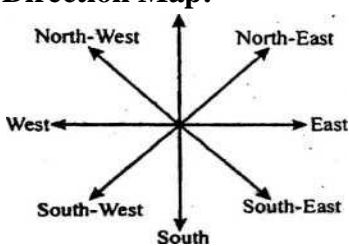


Direction & Distance

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:

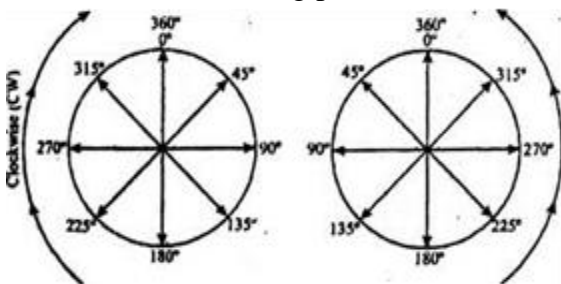


Note:

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

Concept of Degree

Let us see the following picture:



Concept of Turn

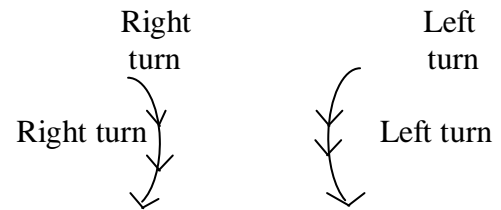
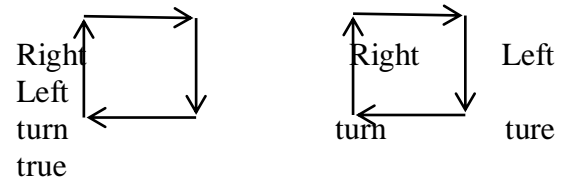
Left turn = clockwise turn

Right turn = Anti-clockwise turn.

Let us understand it through pictorial representation:

Right turn

Left turn



Important Point Regarding Direction

- (1) 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.
- (2) 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.
- (3) 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.
- (4) 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.
- (5) 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.
- (6) 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.
- (7) 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.

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

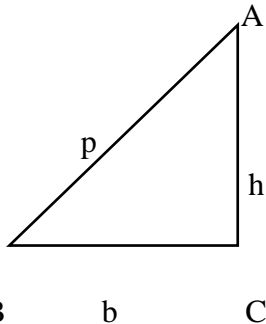
Concept of Minimum Distance

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

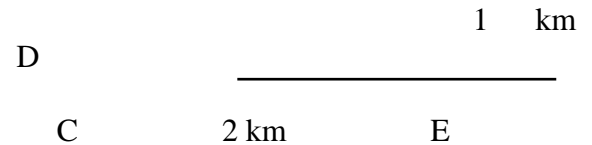
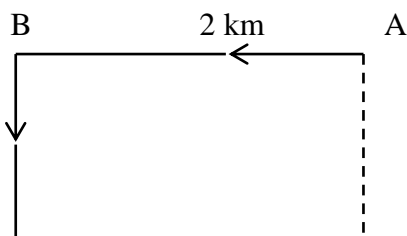
'Pythagoras Theorem'



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

- (a) 4 km (b) 8 km
(c) 10 km (d) 7 km

Sol. (a) 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 $A = AE = BC = 4$ km. Hence option (a) is the correct answer.

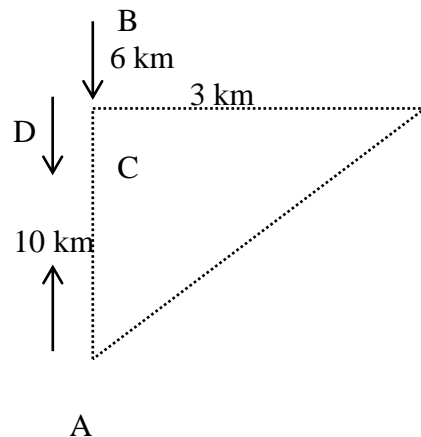


EXAMPLE 2. Rashmi walks 10 km towards North. She walks 6 km towards South then. From here she moves 3 km towards East. How far and in which direction is she with reference to her starting point?

- (a) 6 km West (b) 7 km East
(c) 8 km North (d) 5 km North-East

Sol. (d) It is clear, Rashmi moves from A 10 km Northwards upon 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



Rashmi's distance from starting point A
 $= AD = \sqrt{AC^2 + CD^2} = \sqrt{4^2 + 3^2} = \sqrt{16 + 9}$

$= \sqrt{25} = 5$ km.

From figure, D is to the North-East of A. Hence (d) is the correct option

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