# DIRECTION SENSE TEST

The Concept behind the Directions is same that we use in our day to day life. This direction sense test is nothing but a precise of sensing the direction. To solve the direction sense test first you need to make a sketch of the data provided. Directions questions asked in the exam are based on two principles- Distance and Direction.

The first step for solving the questions using the concept of 'directions' is to understand the direction chart, which has 8 directions. Take a look at the direction chart given below:
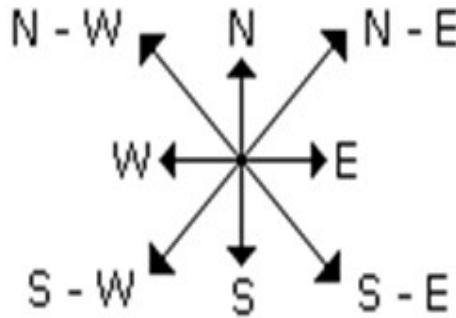

The first point you need to remember is that each main direction change undergoes a 90° change in direction e.g. from North to West/East it will be 90° change. But the change between North and North-east is only 45°.

Left Right Movement

A person facing north, on taking left will face towards west and on taking the right turn towards east. A person facing west, on taking left will face towards south and on taking right turn towards north.

When a question says moved towards left or right side, we assume that the movement is at an angle of 90 degrees.
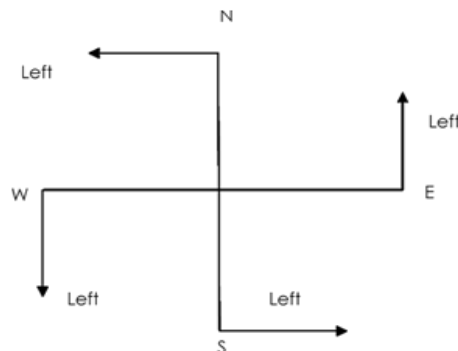
Hence, we can sum up the above points as:

- Whenever a person moves to his left side, he will move towards anti- clockwise direction.
- Whenever a person moves to his right side, he will move towards clockwise direction.

Concept of Pythagoras Theorem

We'll use the concept of Pythagoras theorem to solve the questions on directions.

In a right angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.

$c^2 = a^2 + b^2$
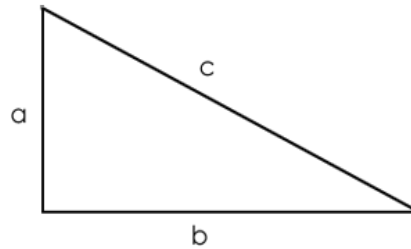
Points to Remember

➢ At the time of sunrise if a man stands facing the east, his shadow will be towards the west.
➢ At the time of sunset the shadow of an object is always in the east.
➢ If a man stands facing the North, at the time of sunrise his shadow will be towards his left and at the time of sunset it will be towards his right.
➢ At 12:00 noon, the rays of the sun are vertically downward hence there will be no shadow.

Example 1: A man starting from his home walks 5 km towards East, and then he turns left and goes 4 km. At last, he turn to his left and walks 5 km. Now find the distance between the man and his home and also find at which direction he is facing?
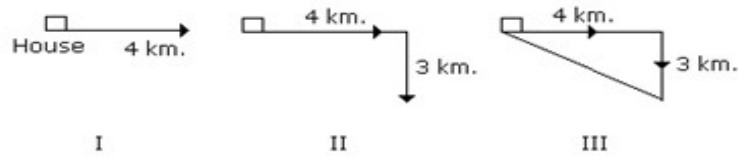
Solution:
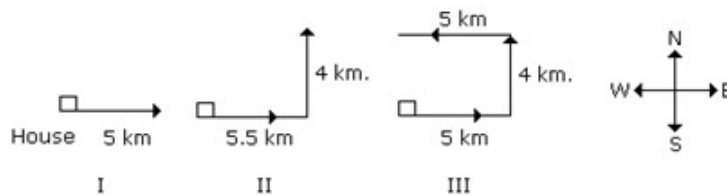
From the above diagram we can find he is 4 km from his house and facing the West Direction.

Example 2: A man starting from his home moves 4 km towards East, then he turns right and moves 3 km. Now what will be the minimum distance covered by him to come back to his home?
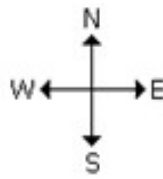
Solution:

| I | II | III |

$$\text{Minimum distance} = \sqrt{(4)^2 + (3)^2}$$

$$= \sqrt{16 + 9}$$

$$= \sqrt{25}$$

$$= 5 \text{ km.}$$

Example 3: After Sunrise, Prakash while going to college suddenly met with Lokesh at a crossing point. Lokesh's Shadow was exactly to right of Prakash. If they were facing each other on which direction was Prakash facing?

Solution: Always Sun rises in the East Direction. So Shadow falls towards West

Example 4: Prem started from his home and moved 5 km to reach the crossing point of the palace. In which direction was Prem going, if the road opposite to his direction goes to the hospital. The road to the right of Prem goes to the station. If the road which goes to station is just opposite to the road of the IT-Park, then in which direction is Prem which leads to the IT- Park?

Solution: From the below diagram its shows that the road which goes towards the IT-Park is left of Prem.

| I | II |
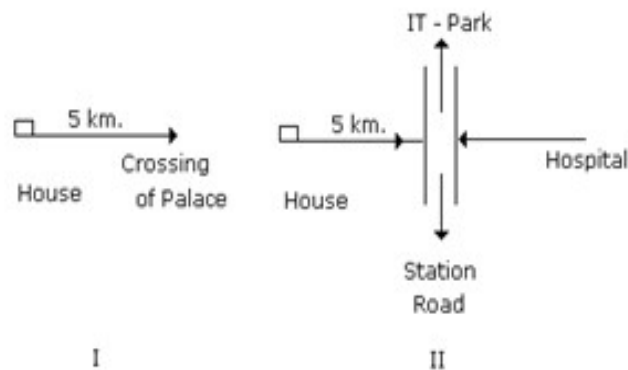
Example 5: A child is looking for his father. He went 90 metres in the East before turning to his right. He went 20 meters before turning to his right again to look for his father at his uncle's place 30 metres from this point. His father was not there. From here he went 100 metres to the North before meeting his father in a street. What is the smallest distance between the starting point and his father's position?
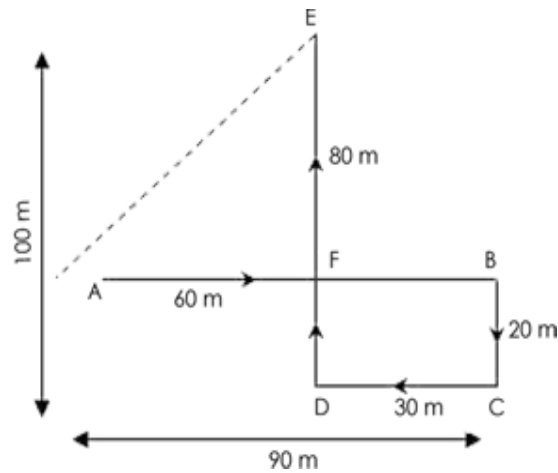
Solution: The movement of the child from A to E is as shown in fig.

Clearly, the child meets his father at E.

Now, AF = (AB - FB) = (AB - DC) = (90 - 30) m = 60 m.

EF = (DE - DF) = (DE - BC) = (100 - 20) m = 80 m.

Now the distance is square root of ($60^2 + 80^2$), which will be 100 metres.

LEVEL – I

1. Siva Reddy walked 2 km west of his house and then turned south covering 4 km. Finally, He moved 3 km towards east and then again 1 km west. How far is he from his initial position?
A. 10 km   B. 9 km   C. 2 km   D. 4 km

2. A man went 10 kms in South. Then turned East and covered 10 kms and turned to the right. Again after 10 kms, he turned to left and covered 10 kms to reach the destination. How far is he from his starting point?
A. 18.8 km   B. 28.28 km   C. 16 km   D. 20 km

3. Rajesh's school bus is facing North when reaches his school. After starting from Rajesh's house, it turning twice right and then left before reaching the school. What direction the bus facing when it left the bus stop in front of Rajesh's house?
A. East   B. North   C. South   D. West

4. Anil wants to go the university. He starts from his house which is in East and comes to a crossing. The road to his left ends in a theatre, straight ahead is the hospital. In which direction is University?
A. East   B. North   C. South   D. West

5. If South-East becomes North, North-East becomes West and so on, what will West become?
A. North   B. East   C. South-East   D. North-West

6. A man walks 1 km towards East and then he turns to South and walks 5 km. Again he turns to East and walks 2 km. After this he turns to North and walks 9 km .How far is he from his starting point?
A. 10 km   B. 9 km   C. 5 km   D. 4 km

7. I am facing South. I turn right and walk 20 m .Then I turn right again and walk 10 m .Then I turn left and walk 10 m and then turning right walk 20 m. Then, I turn right again and walks 60 m. In which direction am I from the starting point?
A. North-East   B. North-West   C. North   D. West

8. Dharma walks 10 km toward North. From there, he walks 6 km towards South .Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point?
A. 2 km South-East   B. 5 km South-East   C. 5 km North-East   D. 5 km West

9. Kumar walks 10 meters in front and 10 meters to the right. Then every time turning to his left he walks 5, 15 and 15 meters respectively. How far is he now from his starting point?
A. 15m   B. 10m   C. 12m   D. 5m

10. The time on the watch is quarter to three. If the minute-head points to North-East, in which direction does the hour hand point?
A. South-West   B. South-East   C. North-West   D. North-East

11. Starting from a point X, Ravi walked 20 m towards South. He turned left and walked 30m. He then turned left and walked 20 m. He again turned left and walked 40 m and reached at a point Y. How far and in which direction is the point Y from the point X?
A. 15m East of X   B. 10m West of X   C. 15m West of X   D. 10m East of X

12. Lakshman went 15 kms to West of his house, then turned left and walked 20 kms. He then turned East and walked 25 kms and finally turning left covered 20 kms. How far was he from his house?
A. 5 kms   B. 10 kms   C. 40 kms   D. 80 kms

13. Ravi started walking towards North. After walking 30 m, he turned left and walked 40 m. He then turned left and walked 30 m. He again turned left and walked 50 m. How far was he from start point?
A. 50m   B. 30m   C. 10m   D. 60m

14. I am standing at the centre of a circular field. I go down south to the edge of the field and then turning left, I walk along the boundary of the field equal to three-eighth of its length .Then I turn left and go right across to the opposite point on the boundary. In which direction am I from starting point?
A. South-West   B. West   C. North-West   D. North

15. A villager went to meet his uncle in another village situated 5 km away in the North-East direction of his own village. From there he came to meet his father-in-law living in a village situated 4 km in the south of his uncle village. How far away and in what direction is he now?
A. 4 km in the East   B. 3 km in the East   C. 4 km in the west   D. 3 km in the North

16. Dhanumjay walks 10 m towards the South .Turning to the left , he walks 20 m and then moves to his right. After moving a distance of 20 m , he turns to the right and walks 20 m. Finally, he turns to the right and moves a distance of 10 m .How far and in which direction is he from the starting point?
A. 20 m North   B. 20 m South   C. 10 m North   D. 10 m South

17. Arjun walked 30 m towards East, took a right turn and walked 40 m .Then he took a left turn and walked 30 m. In which direction is he now from the starting point?
A. South-East   B. South   C. North-East   D. East

18. A man leaves for his office from his house. He walks towards East. After moving a distance of 20 m, he turns South and walks 10 m. Then he walks 35 m towards the West and further 5 m towards the North .He then turns towards East and walks 15 m .What is the straight distance between his initial and final positions?
A. 0   B. 5   C. 10   D. 15

19. Murari walked 40 m towards North, took a left turn and walked 20 m .He again took a left turn and walked for 40 km. How far and in which direction is he from the starting point?
A. 20 m West   B. 20 m South   C. 20 m East   D. 20 m North

20. Nishitha walks 14 m towards west, then turns to her right and walks 14 m and then turns to her left and walks 10 m. Again turning to her left she walks 14 m .What is the shortest distance between her starting point and the present position?
A. 14   B. 24   C. 34   D. 44

1. One morning Udai and Vishal were talking to each other face to face at a crossing. If Vishal's shadow was exactly to the left of Udai, which direction was Udai facing?
A. East   B. West   C. North   D. South

2. Y is in the East of X which is in the North of Z. If P is in the South of Z, then in which direction of Y, is P?
A. North   B. South   C. South-East   D. None of these

3. If South-East becomes North, North-East becomes West and so on. What will West become?
A. North-East   B. North-West   C. South-East   D. South-West

4. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?
A. West   B. South   C. North-East   D. South-West

5. Rahul put his timepiece on the table in such a way that at 6 P.M. hour hand points to North. In which direction the minute hand will point at 9.15 P.M.?
A. South-East   B. South   C. North   D. West

6. Rasik walked 20 m towards north. Then he turned right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Finally he turns left and walks 15 m. In which direction and how many metres is he from the starting position?
A. 15 m West   B. 30 m East   C. 30 m West   D. 45 m East

7. Two cars start from the opposite places of a main road, 150 km apart. First car runs for 25 km and takes a right turn and then runs 15 km. It then turns left and then runs for another 25 km and then takes the direction back to reach main road. In the meantime, due to minor break down the other car has run only 35 km along the main road. What would be the distance between two cars at this point?
A. 65 km   B. 75 km   C. 80 km   D. 85 km

8. Starting from the point X, Jayant walked 15 m towards west. He turned left and walked 20 m. He then turned left and walked 15 m. After this he turned to his right and walked 12 m. How far and in which directions is now Jayant from X?
A. 32 m, South   B. 47 m, East   C. 42 m, North   D. 27 m, South

9. One evening before sunset Rekha and Hema were talking to each other face to face. If Hema's shadow was exactly to the right of Hema, which direction was Rekha facing?
A. North   B. South   C. East   D. Data is inadequate

10. A boy rode his bicycle Northward, then turned left and rode 1 km and again turned left and rode 2 km. He found himself 1 km west of his starting point. How far did he ride northward initially?
A. 1 km   B. 2 km   C. 3 km   D. 5 km

Directions to Solve (11-12): Dev, Kumar, Nilesh, Ankur and Pintu are standing facing to the North in a playground such as given below:
Kumar is 40 m to the right of Ankur.

Dev is 60 m in the south of Kumar.
Nilesh is at a distance of 25 m in the west of Ankur.
Pintu is at a distance of 90 m in the North of Dev.

11. Which one is in the North-East of the person who is to the left of Kumar?
A. Dev   B. Nilesh   C. Ankur   D. Pintu

12. If a boy starting from Nilesh, met to Ankur and then to Kumar and after this he to Dev and then to Pintu and whole the time he walked in a straight line, then how much total distance did he cover?
A. 215 m   B. 155 m   C. 245 m   D. 185 m

Directions (13-15): These questions are based on the following information:
Seven villages A, B, C, D, E, F and G are situated as follows:
(i) E is 2 km to the west of B.   (ii) F is 2 km to the north of A.
(iii) C is 1 km to the west of A.   (iv) D is 2 km to the south of G.
(v) G is 2 km to the east of C.   (vi) D is exactly in the middle of B and E.

13. A is in the middle of
A. E and C   B. E and G   C. F and G   D. G and C

14. Which two villages are west of G?
A. D and C   B. F and E   C. C and A   D. G and E

15. How far is E from D (in km)?
A. 1   B. √20   C. 5   D. √26

16. A man is facing west. He turns 45 degree in clockwise direction and then another 180 degree in same direction and then 270 degree in anticlockwise direction. Find which direction he is facing now?
A. South-West   B. West   C. South   D. East-South

17. A man is facing north. He turns 45 degree in the clockwise direction and then another 180 degree in the same direction and then 45 degree in the anticlockwise direction. Find which direction he is facing now?
A. North   B. East   C. West   D. South

18. One day, Raviraj left home and cycled 20 Km southwards, turned right and cycled 10 km and turned right and cycled 20 Km and turned left and cycled 20 Km. How many kilometres will he have to cycle to reach his home straight?
A. 50 Km   B. 30 Km   C. 40 Km   D. 60 Km

19. Kunal walks 10 km towards North. From there he walks 6 Km towards South. Then, he walks 3 Km towards east. How far and in which direction is he with reference to his starting point?
A. 5 Km North   B. 5 Km South   C. 5 Km East   D. 5 Km North-East

20. Gaurav walks 20 metres towards North. He then turns left and walks 40 metres. He again turns left and walks 20 metres. Further, he moves 20 metres after turning to the right. How far is he from his original position?
A. 40 metres   B. 50 metres   C. 60 metres   D. 70 metres