



DEPARTMENT OF EMPLOYMENT AND TRAINING

TNPSC GROUP II A MAINS - UNIT II

Course : TNPSC Group II A Mains Material

Subject : General Intelligence and Reasoning

Topic : Direction and Distance

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**Director,
Department of Employment and Training.**

Directions

Directions:

Direction refers to the information that tells you the orientation or position of one point relative to another, without involving the actual distance between them. It provides a sense of "where" one object is in relation to another, but doesn't specify how far apart they are.

Relative direction is when the direction is given in relation to some indicated reference or a specific object. For example, saying "to the left of the tree" is a relative direction.

Absolute direction refers to a fixed frame of reference, such as using cardinal directions (north, south, east, west) or a coordinate system (like latitude and longitude), where the direction is consistent regardless of the observer's position.

Cardinal directions:

The four cardinal directions or cardinal points are:

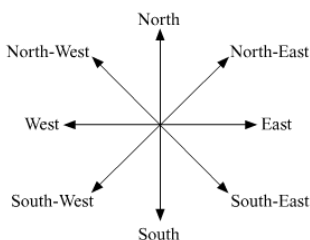
1. North
2. East
3. South
4. West



Intercardinal directions:

Also known as ordinal directions, these are the four directions formed by bisecting the cardinal directions. They are

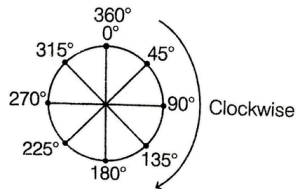
1. Northeast (NE)
2. Southeast (SE)
3. Southwest (SW)
4. Northwest (NW).



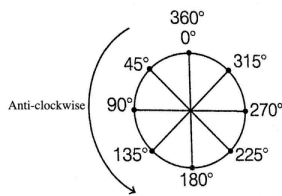
Angle of Movement:

For solving questions based on angle of movement, it is necessary to know the rotations which are given below

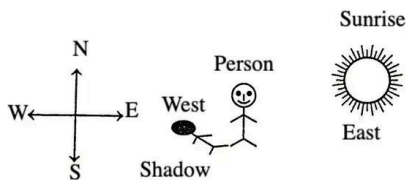
(i) Movement towards the right is called clockwise (CW) movement.



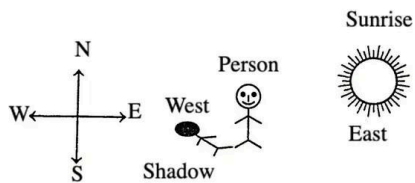
(ii) Movement towards the left is called anti-clockwise (ACW) movement.

**Shadow at the Time of Sunrise:**

In the morning, sunrise in the East, the shadow of any person or object falls in the West.

**Shadow at the Time of Sunset:**

In the evening, when the sunset in the West, the shadow of a person or an object falls in the East.



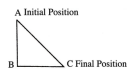
Shortest Distance:

If we draw a straight line from the initial point of the object to the final point, then length of this line is called shortest distance.

e.g. An object starts from point A and reaches to point C after going through point B

But shortest distance between initial and final position = AC

To find the shortest distance between two points, it is necessary to know Pythagoras theorem.



Here, in Triangle ABC,

AB = Perpendicular

BC = Base and

AC = Hypotenuse

Hence, the shortest distance between A and C

$$\text{i.e. } AC = \sqrt{AB^2 + BC^2}$$

Topics involved:

1. The right and left directional movement
2. The directional reference point
3. The directions of sun rays and shadow
4. The correct map v/s wrong map
5. Directions in Clocks
6. Directions in Seating arrangement

Variety of Questions:

1. In the morning, Vijay and Hari were talking to each other face to face at a crossing. If Hari's shadow was exactly to the right of vijay, which direction was vijay facing?

- a. North
- b. South
- c. East
- d. West

Answer: b. South

Explanation:

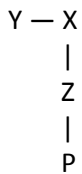
In the morning, the sun rises in the east, and its rays travel westward. Shadow of an object always lies opposite to the light source. If Shadow lies on the right side of vijay means, he is facing south.

2. Y is in the West 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?

- South East
- South West
- North East
- North West

Answer: a. South East

Explanation:



Now P is in south east of Y

3. A drives 16 km towards North, then turns right and walks 8 km. He again turns to his right hand side and moves 16 km forward. How many km is A away from the place of his starting the journey?

- 6km
- 8km
- 10km
- 12km

Answer: b.8km

Explanation:

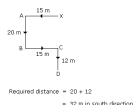


4. Starting from the point X, Karthik walked 15 m towards west. He turned left and walked 20 m. He then turned left and walked 15 m. After this he turned to his right and walked 12 m. How far and in which directions is now Karthik from X?

- 24, North
- 32, North
- 32, South
- 24, South

Answer: 32, South

Explanation:



5. 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. 1km
- b. 2km
- c. 3km
- d. 4km

Answer: b. 2km

Explanation:



The boy ride to 2km

6. One morning Abarna started to walk towards the Sun. After covering some distance she turned to right then again to the right and after covering some distance she again turns to the right. Now in which direction is she facing?

- a. North
- b. South
- c. East
- d. West

Answer: North

Explanation:



7. Mahesh started to walk straight from A towards south to reach point B. After walking 5 m he turned to the left and walked 3 m to reach point C. After this he turned to the right and walked 5 m to reach point D. Now to which direction Mahesh is facing?

- a. North
- b. South
- c. East
- d. West

Answer: South

Explanation:



At the end mahesh faces South.

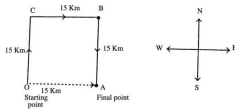
8. Raman walks 15 km towards North. She turns right and walks another 15 km. She turns right and walks another 15 km. In which direction is she from the starting point?

- a. North

- b. South
- c. East
- d. West

Answer: c. East

Explanation:

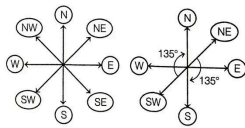


9. If South-West becomes North, then what will North-East be?

- a. South
- b. South east
- c. North west
- d. North

Answer: a. South

Explanation:

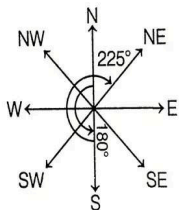


10. Sunita is facing North. She turns 180° in the anti-clockwise direction and then 225° in the clockwise direction. Which direction is she facing now?

- a. North
- b. North east
- c. South
- d. South west

Answer: North East

Explanation: The girl turns 180° in anti-clockwise direction and then 225° in the clockwise direction, which means she finally turns 45° in clockwise direction.

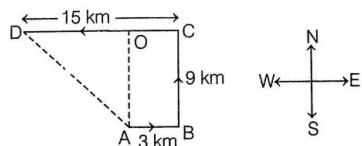


11. A person starts from a point A and travels 3 km Eastwards to B and then turns left and travels thrice that distance to reach C. He again turns left and travels five times the distance he covered between A and B and reaches his destination D. The shortest distance between the starting point and the destination is

- a. 12 km
- b. 15 km
- c. 18 km
- d. 16 km

Answer: b. 15km

Explanation:



According to the question,

$$BC = (3 \times 3) = 9 \text{ km}$$

$$CD = (3 \times 5) = 15 \text{ km}$$

$$OD = (15 - 3) = 12 \text{ km}$$

Now, required distance,

$$AD = \sqrt{OD^2} + \sqrt{OA^2} = \sqrt{12^2} + \sqrt{9^2}$$

$$= \sqrt{144} + \sqrt{81} = 12 + 9 = 21 \text{ km}$$

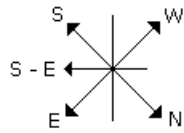
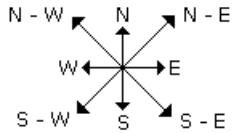
12. Dinesh put his timepiece on the table in such a way that at 6 P.M. hour hand points to North. In which direction the minute hand will point at 9.15 P.M. ?

- a. South West
- b. North West
- c. South East
- d. North East

Answer: c. South East

Explanation:

Based on the above conditions, the diagram shows that the new name of West will become South-East.



13. K is 40 m South-West of L. If M is 40 m South-East of L, then M is in which direction of K?

- a. West
- b. East
- c. South
- d. North

Answer: b. East

Explanation:



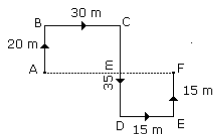
Hence M is in the East of K

14. 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 East
- b. 45 m East
- c. 30 m West
- d. 15 m West

Answer: 45 m East.

Explanation:



$$\begin{aligned}\text{Required distance} &= AF \\ &= 30 + 15 \\ &= 45 \text{ m.}\end{aligned}$$

From the above diagram, F is in East direction from A.

Hence the required answer is '45 m East'.

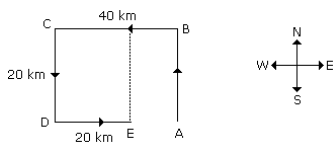
15. Sachin walks 20 km towards North. He turns left and walks 40 km. He again turns left and walks 20 km. Finally he moves 20 km after turning to the left. How far is he from his starting position?

- a. 15km
- b. 20km
- c. 25km
- d. 30km

Answer: b. 20km

Explanation:

Required distance = $40 - 20 = 20$ km.



Practice Questions:

1. If Rohan starts driving from a point towards north & after he has covered 6 kms he turn to his left side and drive 7 km, and then again turn to his left end and walk 11 km and then turn to left again and walk another 8 km and before finishing he takes another left turn & walk 3 km, then answer following questions. How many kms is he from the place he started his journey (approximately)?

- a. 1 km
- b. 2km
- c. 3km
- d. 4km



2. A man walks from A 5 km toward south and reach point B, then turns to the right. After walking 3 km and reach point C. Then he turns to the left and walks 5 km to reach point D. Now in which direction is he from the starting place?

- a. South West
- b. North East
- c. South east
- d. North west

3. A girl is standing facing towards the east. She turns 45 degrees in the anticlockwise direction and then turns 180 degrees in the clockwise direction. Which direction is she facing now?

- a. South East
- b. North East
- c. South West
- d. North West

4. A boy walks 15 m north, turns right, and walks 20 m. Again, he turns right and walks 15 m. Finally, he turns to his left and moves 20 m. What is the distance now from his original position?

- a. 50 km
- b. 40 km
- c. 30 km
- d. 20 km

5. P started walking from north to south. She turned right at a right angle and then again right at a right angle. In which direction was she ultimately walking?

- a. South
- b. East
- c. West
- d. North

Answers:

Q.No	1	2	3	4	5
Answers	b	a	c	b	d

