3.4 CHAPTER

Direction Sense Test

1. Dalbir is facing south. He turns 135° in the anticlockwise direction and then 180° in the clockwise direction. Which direction is he facing now?
   (a) North-east (b) North-west
   (c) South-east (d) South-west

2. Muong a college student is facing north-west. He turns 90° in the clockwise direction and then 135° in the anticlockwise direction. Which direction is he facing now?
   (a) East (b) West
   (c) North (d) South

3. Rakesh starts walking straight towards east. After walking 75 metres, he turns to the left and walks 25 metres straight. Again he turns to the left, walks a distance of 40 metres straight, again he turns to the left and walks a distance of 25 metres. How far is he from the starting point?
   (a) 25 metres (b) 50 metres
   (c) 140 metres (d) none of these

4. Neelesh leaves for his office from his house. He walks towards East. After moving a distance of 20 m, he turns towards 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 in metres between his initial and final positions?
   (a) 0
   (b) 5
   (c) 10
   (d) cannot be determined

5. Vinod 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) 20 metres (b) 30 metres
   (c) 50 metres (d) 60 metres

6. Kuldeep starts from his house towards West. After walking a distance of 30 metres, he again turned towards right and walked 20 metres. He then turned left and moving a distance of 10 m turned to his left and walked 40 metres, turns to the left and walks 5 metres. Finally he turns to his left. In which direction is he walking now?
   (a) North (b) South
   (c) East (d) South-West

7. A rat runs 20' towards East and turns a right, runs 10' and turns to right, runs 9' and again turns to left, runs 5' and then turns to left, runs 12' and finally turns to left and runs 6'. Now, which direction is the rat facing?
   (a) East (b) West
   (c) North (d) South

8. Bhawna leaves from her home. She first walks 30 metres in North-west direction and then 30 m in South-West direction. Next, she walks 30 metres in South-east direction. Finally, she turns towards her house. In which direction is she moving?
   (a) North-east (b) North-west
   (c) South-east (d) South-west

9. 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 walk 60 m. In which direction am I from the starting point?
   (a) North (b) North-west
   (c) East (d) North-east

10. A man walks 1km 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. Now, how far is he from his starting point?

(a) 3 km (b) 4 km
(c) 5 km (d) 7 km

11. From his house Sanjay went 15 kms to the North. Then he turned West and covered 10 kms. Then, he turned South and covered 5 kms. Finally, turning to East, he covered 10 kms. In which direction is he from his house?
(a) East (b) West
(c) North (d) South

12. Going 50 m to the South of her house, Radhika turns left and goes another 20 m. Then, turning to the North, she goes 30 m and then starts walking to her house. In which direction is she walking now?
(a) North-west (b) North
(c) South-east (d) East

13. Michael walks 20 m North. Then he turns right and walks 30 m. Then he turns right and walks 35 m. Then he turns left and walks 15 m. Then he again turns left and walks 15 m. In which direction and how many metres away is he from his original position?
(a) 15 metres west (b) 30 metres east
(c) 30 metres west (d) 45 metres east

14. A child is looking for his father. He went 90 metres is the East before turning to his right. He went 20 metres 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. How far did the son meet his father from the starting point?
(a) 80 metres (b) 100 metres
(c) 140 metres (d) 260 metres

15. The door of Aditya's house faces the East. From the back side of his house, he walks straight 50 metres, then turns to the right and walks 50 metres again. Finally he turns towards left and stops after walking 25 metres. Now, Aditya is in which direction from the starting point?
(a) South-east (b) North-east
(c) South-west (d) North-west

16. Two buses start from the opposite points of a main road, 150 kms apart. The first bus runs for 25 kms straight and takes a right turn and then runs for 15 kms. It then turns left and runs for another 25 kms and takes the direction back to reach the main road. In the meantime, due to a minor breakdown, the other bus has run only 35 kms along the main road. What would be the distance between the two buses at this point?
(a) 65 kms (b) 75 kms
(c) 80 kms (d) 85 kms

17. X and Y start moving towards each other from two places 200 m apart. After walking 60 m, Y turns left and goes 20 m, then he turns right and goes 40 m. He then turns right again and comes back to the road on which he had started walking. If X and Y walk with the same speed, what is the distance between them now?
(a) 20 m (b) 30 m
(c) 40 m (d) 50 m

18. Five boys are standing in a row facing East. Deepak is to the left of Sameer, Tushar and Shailendra. Sameer, Tushar and Shailendra are to the left of Sushil. Shailendra is between Sammer and Tushar. If Tushar is fourth from the left, how far is Sameer from the right?
(a) First (b) Second
(c) Third (d) Fourth

19. After walking 6 km, I turned right and covered a distance of 2 km, then turned left and covered a distance of 10 km. In the end, I was moving towards the north. From which direction did I start my journey?
(a) North (b) South
(c) East (d) West

20. A postman was returning to the post office which was in front of him to the north. When the post office was 100 metres away from him, he turned to the left and moved 50 metres to deliver the last letter at Shantivilla. He then moved in the same direction for 40 metres, turned to his right and moved 100 metres. How many metres was he away from the post office.
(a) 0 (b) 90
(c) 150 (d) 100

21. A boy rode his bicyle northwards, then turned left and rode one km and again turned left and rode 2 km. He found himself exactly one km west of his starting point. How far did he ride northwards initially?
(a) 1 km (b) 2 km
(c) 3 km (d) 5 km

Direction (Qs. 22 to 26): Read the following information carefully and answer the questions given below it:

(i) There are six flat on a floor in two rows facing North and South are allotted to P, Q, R, S, T and U.

(ii) Q gets a North facing flat and is not next to S.

(iii) S and U get diagonally opposite flats

(iv) R, next to U, gets a South facing flat and T gets a North facing flat

22. Which of the following combinations get South facing flats?
(a) QTS (b) UTP
(c) URP (d) Data inadequate

23. Whose flat is between Q and S?
(a) T (b) U
(c) R (d) T

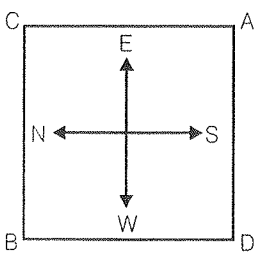
24. If the flats of T and P are interchanged, whose flat will be next to that of U?
(a) P (b) Q
(c) R (d) T

25. The flats of which of the other pairs than SU is diagonally opposite to each other?
(a) QP (b) QR
(c) PT (d) TS

26. To arrive at the answers to the above questions, which of the following statements can be dispensed with?
(a) None (b) (i) only
(c) (ii) only (d) (iii) only

27. Anju started walking positioning her back towards the sun. After sometime, she turned left, then turned right and then towards the left again. In which direction is she going now?
(a) North or South (b) East or West
(c) North or West (d) South or West

Direction (Qs. 28 to 32): The following questions are based on the diagram given below showing four persons stationed at the four corners of a square piece of plat as shown.



28. A starts crossing the field diagonally. After walking half the distance, he turns right, walks some distance and turns left. Which direction is A facing now?
(a) North-east (b) North-west
(c) North (d) South-east

29. From the original position given in the above figure, A and B move one arm length clockwise and then cross over to the corner diagonally opposite; C and D move one arm length anti-clockwise and cross over the corner diagonally opposite. The original configuration ADBC has now changed to
(a) CBDA (b) BDAC
(c) DACB (d) ABCD

30. From the original position, B and D move one and a half length of sides clockwise and anticlockwise respectively. Which one of the following statements is true?
(a) B and D are both at the midpoint between A and C
(b) D is at the midpoint between A and C, and B at the corner originally occupied by A.
(c) B is at the midpoint between A and C, and D at the corner originally occupied by A.
(d) B and D are both at the midpoint between A and D.

31. From the positions in original figure, C and A move diagonally to opposite corners and then one side each clockwise and anticlockwise respectively. B and D move two sides each clockwise and anticlockwise respectively. Where is A now?
(a) At the north-west corner
(b) At the north-east corner
(c) At the south-east corner
(d) At the south-west corner

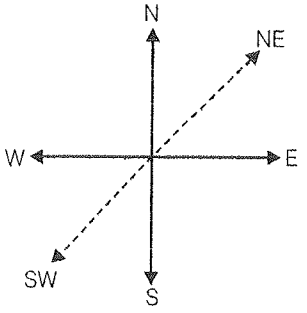
32. After the movements given in Q.31 above, who is at the north-west corner?
(a) A (b) B
(c) C (d) None of these

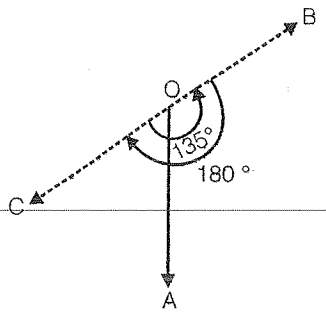
33. A square field ABCD of side 90 m is so located that its diagonal AC is from north to south and the corner B is to the west of D. Muong and Thames start walking along the sides from B and C respectively in the clockwise and anticlockwise direction with speeds of 8 m/s and 10 m/s. Where shall they cross each other the second time?
(a) On AD at a distance of 30 m from A
(b) On BC at a distance of 10 m from B

(c) On AD at a distance of 30 m from D
(d) On BC at a distance of 10 m from C

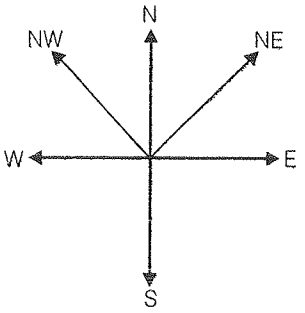
Solutions

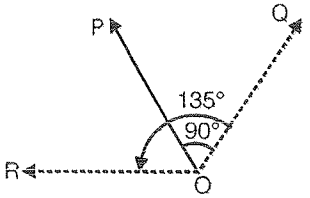
1. (d) As shown in Fig. 1, Dalbir initially faces in the direction OA, On moving 135° anticlockwise, he faces in the direction OB. On further moving 180° clockwise, he faces in the direction OC, which is South-west.



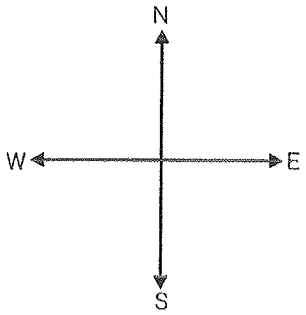


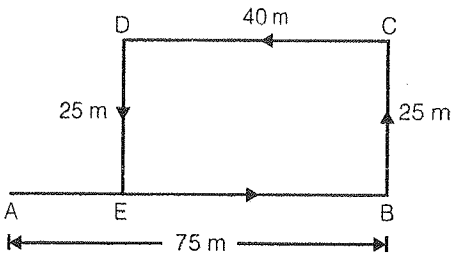
2. (b) As shown in Fig. 2, Muong initially faces in the direction OP. On moving 90° clockwise, he faces in the direction OQ. On further moving 135° anti-clockwise, he faces in the direction OR, which is West.





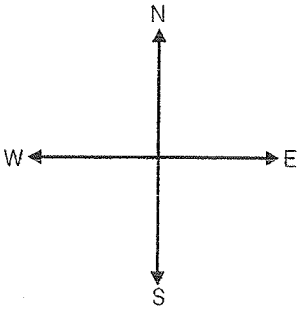
3. (d) The movement of Rakesh are as shown in Fig.

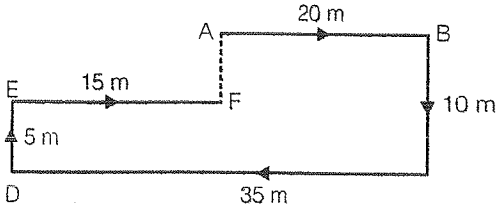




Clearly, EB = DC = 40 m.
∴ Rakesh's distance from the starting point A = (AB – EB) = (75 – 40) m = 35 m.

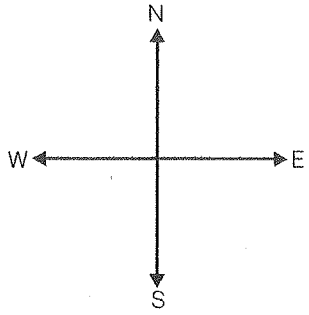
4. (b) The movement of Neelesh from A to F are as shown in Fig.

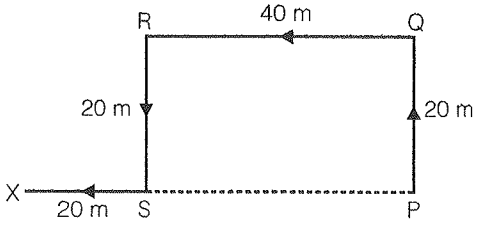




Clearly, DC = AB + EF.
∴ F is in line with A.
Also, AF = (BC – DE) = 5 m.
So, Neelesh is 5 metres away from his initial position.

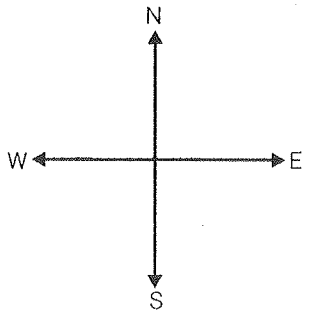
5. (d) The movements of Vinod are as shown in Fig.

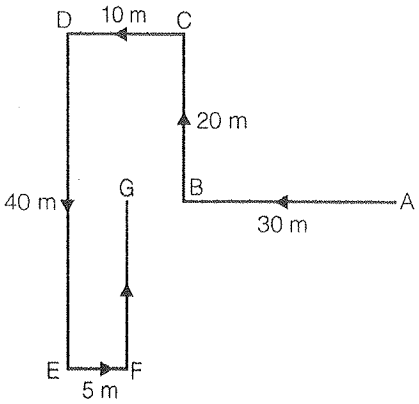




Clearly; Vinod's distance from his initial position
$P \Rightarrow PX = (PS + SX)$
$= (QR + SX)$
$= (40 + 20)\ m = 60\ m.$

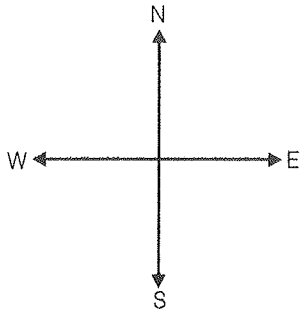
6. (a) The movement of Kuldeep are as shown in Fig. from A to G.

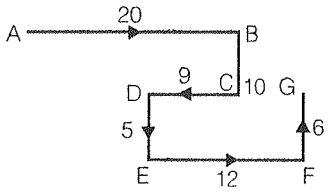




Clearly, Kuldeep is finally walking in the direction FG i.e, North

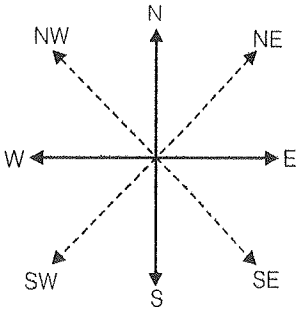
7. (c) The movements of the rat from A to G are as shown in Fig.

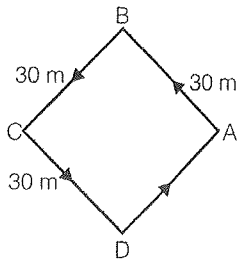




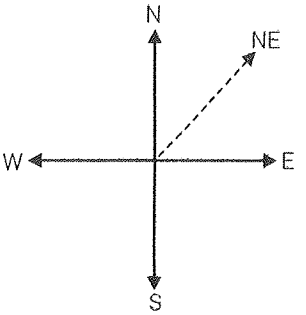
Clearly, it is finally walking in the direction FG i.e, North

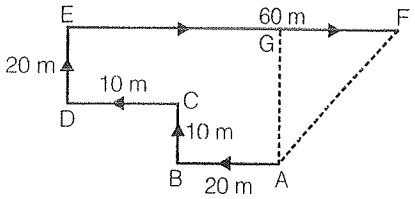
8. (a) The movements of Bhawna are as shown in Fig. (A to B, B to C, C to D, D to A)
Clearly, she is finally moving in the direction DA i.e, North-east



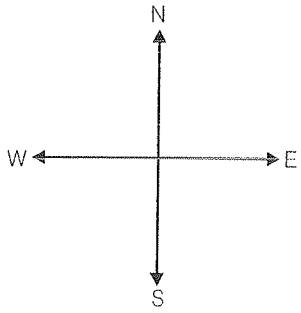


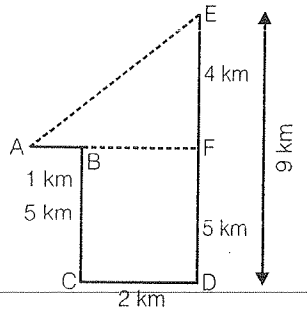
9. (d) The movements of the person are from A to F, as shown Fig. Clearly, the final position is F which is to the North-east for the starting point A





10. (c) The movements of the man are as shown in Fig. (A to B, B to C, C to D, D to E).



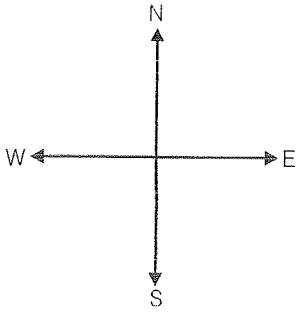


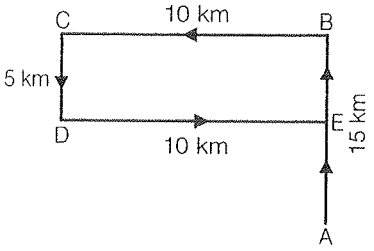
Clearly, DF = BC = 5 km.
EF = (DE – DF) = (9 – 5) km = 4 km.
BF = CD = 2 km
AF = AB + BF = AB + CD = (1 + 2) km = 3 km
∴ Man's distance from starting point A

$= AE = \sqrt{AF^2 + EF^2} = \sqrt{3^2 + 4^2}$

$= \sqrt{25} = 5$ km

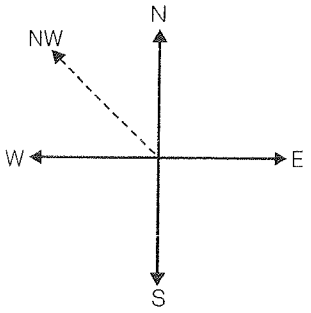
11. (c) The movements of Sanjay are as shown in Fig. (A to B, B to C, C to D and D to E).

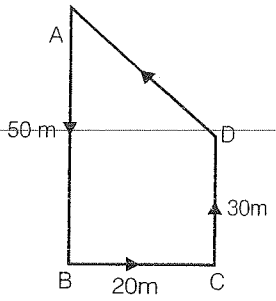




Clearly, his final position is E which is to the North of his house at A.

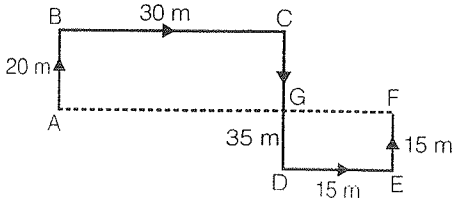
12. (a) The movements of Radhika are as shown in Fig. (A to B, B, to C, C to D and D to A).





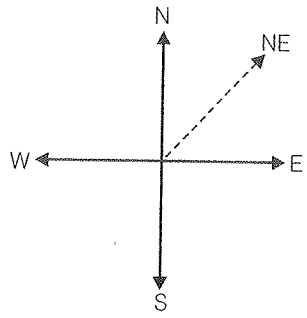
Clearly, she is finally moving in the direction DA i.e. North-west.

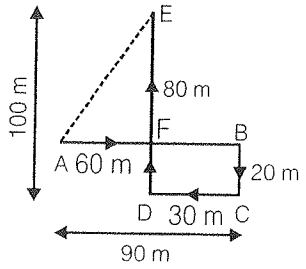
13. (d) The movement of Michael from A to F are as shown in Fig.



Since CD = AB + EF, so F lies in line with A
∴ Michael's distance from original position A
= AF = (AG + GF)
= (BC + DE) = (30 + 15) = 45 m.
Also, F lies to the east of A

14. (b) The movements of the child from A to E are as shown in Fig.





Clearly, the child meets his father at E.

Now, $AF = (AB - FB) = (AB - DC)$

$= (90 - 30)\ m = 60\ m.$

$EF = (DE - DF) = (DE - BC)$

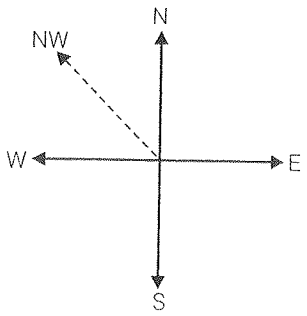
$= (100 - 20)\ m = 80\ m$

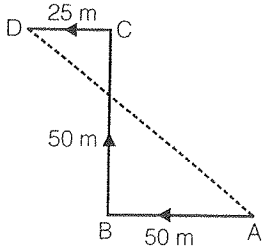
$$AE = \sqrt{(AF)^2 + (EF)^2}$$

$$= \sqrt{60^2 + 80^2} = 100\ m$$

15. (d) Since Aditya's house faces towards East and he walks from backside of his house, it means that he starts walking towards West. Thus, the movements of Aditya are as shown in Fig. (A to B, B, to C, C to D).

Clearly, Aditya's final position is D which is to the North-west of the starting point A.





16. (a) Let X and Y be two buses.

Bus X travels along the path

PA, AB, BC, CD

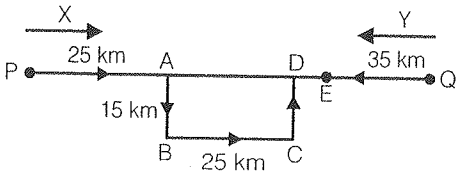
Now, AD = BC = 25 km

Bus Y travels 35 km upto E

∴ Distance between two buses

$= PQ - (PD + QE)$

$= [150 - (50 + 35)] = 65\ km$



17. (c) Clearly Y moves 60 m from Q upto A, then 20 m upto B, 40 m upto C and then upto D.

So, AD = BC = 40 m.

QD = (60 + 40) m = 100m.

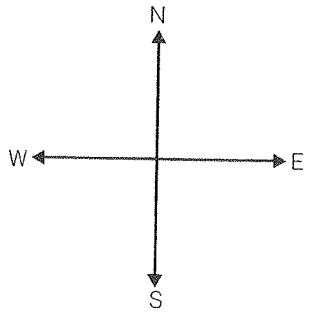
Since X and Y travel with the same speed, X will travel the same distance along the horizontal as Y travels in the same tiem

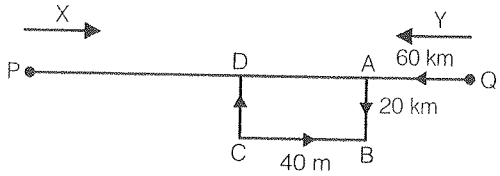
i.e. (60 + 20 + 40 + 20) = 140 m.

So, X travels 140 m upto A.

∴ Distance between X and Y

= AD = (100 – 60) m = 40 m.





18. (d) Deepak (D) is to the left of Sameer (Sm), Tushar (T) and Shailendra (Sh) means

D, Sm, T, Sh.

Sameer, Tushar and Sailendra are to the left of Sushil (Su) means

Sm, T, Sh, Su.

Shailendra is between Sameer and Tushar means

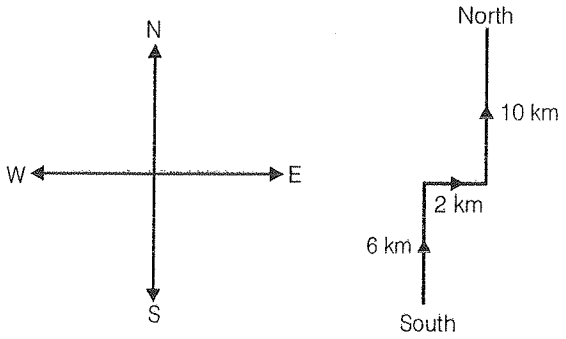
Sm, Sh, T.

Tushar is fourth from the left means

□□□T.

Combining all the arrangements, we have D, Sm, Sh, T, Su.
So Sameer is fourth from the right.

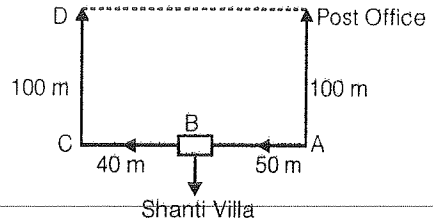
19. (b) Clearly, the route is as shown in the adjoining diagram. Thus, I started the journey from the South and moved northwards



20. (b) Clearly, the route of the postman is as shown. So, at the final point the distance of postman from post office

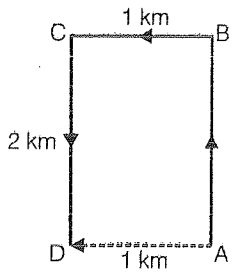
$= PD = AC = AB + BC$

$= 50 + 40 = 90$ m



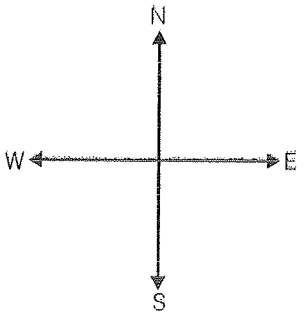
21. (b) Clearly, the boy rode from A to B, to C and finally upto D. Since D lies to the west of A, so required distance

$= AB = CD = 2$ km

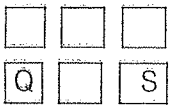


Answer 22 to 26

Q gets a North-facing flat and is not next to S means

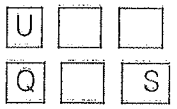


(South facing flats) ↓

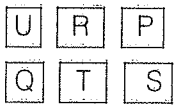


(North facing flats) ↑

S and U get diagonally opposite flats means



R, next to U, gets a South facing flat and T gets a north facing flat means



So, the arrangement is:

South facing flats U R P

North facing flats Q T S

22. (c) The South facing flats are U, R, P

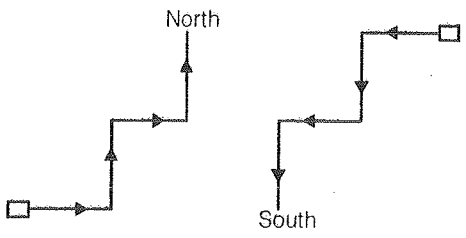
23. (a) T's flat is between Q and S

24. (c) The flat next to U's flat is of R, which remains unchanged if the flats of T and P are interchanged

25. (a) The diagonally opposite pairs are SU and QP

26. (a) Clearly, all the statements are necessary to answer the given questions

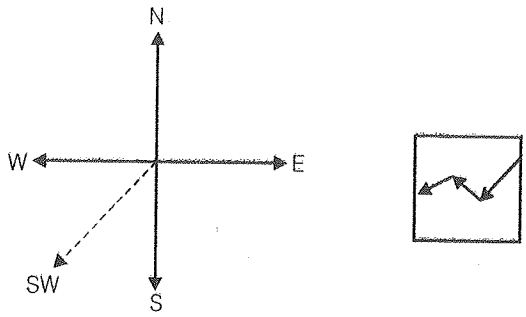
27. (a) Clearly, there are two possible movements of Anju as shown below:



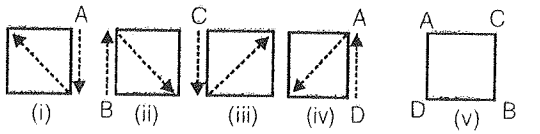
(i) (ii)

Thus, Anju is finally moving towards either North or South

28. (b) Clearly, the route of A is as shown Comparing it with the given diagram, the direction of A will be north-west

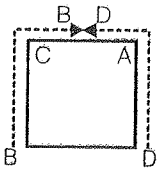


29. (a) Clearly, (i), (ii), (iii) and (iv) show the movements of A, B, C, and D respectively while the new arrangement so obtained is shown in (v). So, the congiruration changes to CBDA.

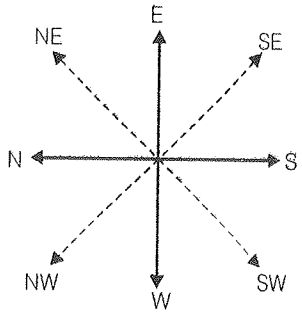


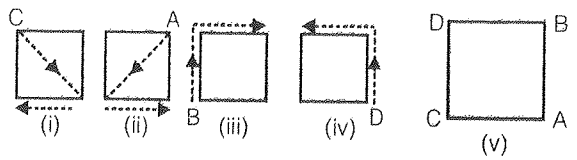
Final position

30. (a) The movements of B and D are clearly shown in the adjoining diagram
So, statements (a) is true.



31. (d) The movements of A, C, B, and D are shown in figures (i), (ii), (iii) and (iv) respectively. The final configuration is shown in (v). Comparing (v) with the given diagram, A is in the south-west corner.

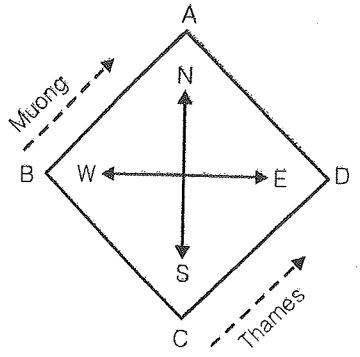




(Final Position)

32. (c) Clearly, C is at the north-west corner

33. (d) Clearly, the arrangement is as shown in the adjoining diagram.



It is given that
Muong's speed = 8 m/s
Thames's speed = 10 m/s
It is clearly visible from the above figure that to meet for the first time they have to cover a distance of 270 m i.e three arms length of the field.
BA + AD + CD = 90 + 90 + 90 = 270 m
Since they are running in clockwise and anticlockwise direction respectively, they have to cover a distance of 360 m (i.e. 4 arms length of the field) for their second meeting from the first meeting point.
Thus, total distance to be covered for their second meeting = 270 + 360 = 630 m

$$\text{Time required} = \frac{630}{8+10} = \frac{630}{18}$$

= 35 seconds
Distance covererd by Muong in clockwise direction in 35 seconds = 35 × 8 = 280 m
Distance covered by Thames in anticlockwise direction in 35 seconds
= 35 × 10 = 350 m
Thus, Muong and Thames will meet on BC at a point 10 m from C and 80 m from B.

■■■■