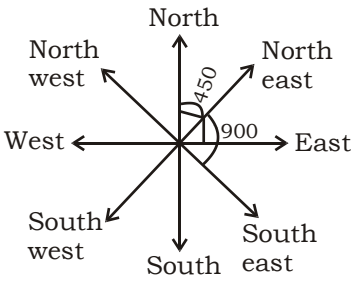
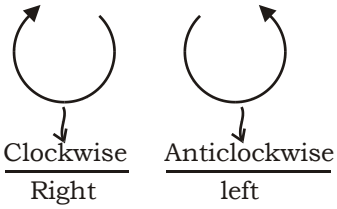
DIRECTION

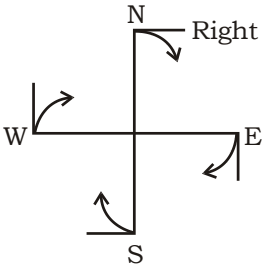
09 CHAPTER



N W S E – Anti clockwise
N E S W – Clock wise

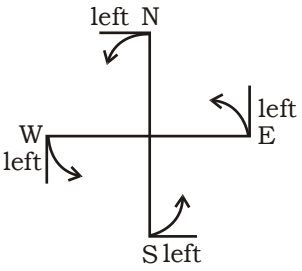
N W S E – okekor Z(nk¡lsck)
N E S W – nf{kkor Z(ck¡lsnk)





clockwise moving

Fig (i)



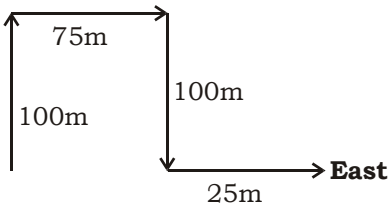
Anti-clockwise moving

Fig (ii)

TYPE - I

1. A man walking towards north after walking 100 m turns right and walk 75 m again he turns right and walk 100 m and last movement he turns left and walk 25 m now which direction he is walking?

Sol.



Ans : East

Trick:-

North
Right
Right ×
left ×
East

2. East
Left ×
Right ×
Right ×
Left ×
Left

East Left North

3. South
L ×
R
R
R
2R
?

South opposite North

v xj 2R ; k 2L (Opposite direction)

4. South
L
L
2L
R
L
?

South-west opposite North east

5. West
R
R
R
R
? West

4 Right ; k 4 left gks = same direction

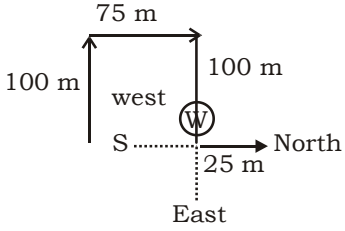
6. North
400 times R
300 times L
300 R cp k 100R : $\frac{100}{25}$ 4R
300 L
?
(North) 4R Same North

4 Multiple

TYPE -II

7. A man walks in straight 100 m and turns his right and walk 75 m. Again he turns his right and walk 100 m. And last he turns his left and walk 25 m. If now he is walking in north direction. Then find from which direction he started?

Sol.



west

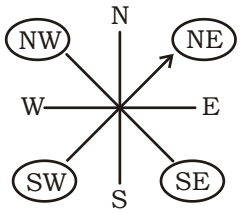
Trick

? West
R
R
L
North

8. ? South
L Change R
R
L
R
L
East

9. ? East
(L) Change (R)
~~R~~
~~L~~
~~R~~
~~L~~
North

10. ? North east
~~R~~
~~L~~
(R R) 2 R change direction 2 L
South west



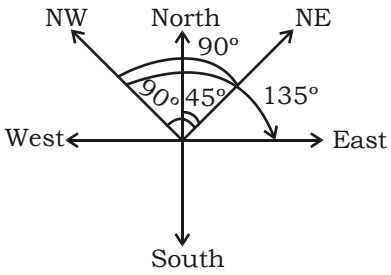
Right- clockwise
left-Anti-clockwise

? (North-east)
~~L~~
~~R~~
~~R~~
~~L~~
(L) change (R)
North-west

TYPE -III

11. A man faces towards north first he turns is 45° clockwise then he turns 90° Anticlockwise. At last he turns 135° clockwise. Now his face on which side?

Sol.



now his face on East

Trick

North
45° Clock-wise
+ 90° Anti-clock-wise
135° Clock-wise

45°+135° =180° Clock-wise
90° Anti-clock-wise
90° Clock-wise

[Those digit higher, C.W and A.C.W depends on that]
East

12. East
45° c.w]
90° c.w] +
180° A.c.w
135° c.w]+
270° c.w
180° A.c.w
90° c.w ⟶ South

[Those digit higher, C.W and A.C.W depends on that]
East

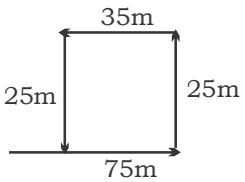
13. East
45° c.w]
90° A.c.w
45° A.c.w
90° c.w]
45° c.w]
180° A.c.w
135° A.c.w
45° c.w ⟶ North-east

14. A man is walking towards east. He walks 75m and turn left and again walks 25 m. Again he turn left he walks 35 m. At last he walk 25 m and turn left.

Types

1. Now, he is going in which direction
2. Now he is on which direction from the initial point?
3. Now he is how far distance from the initial point?
4. Now he is how far and in which direction from the initial point?

Sol.



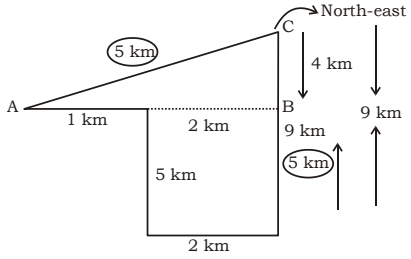
1st East
L
L
L
South
2L oppsite Driection ⟶ west
west d k left south
gkak

2nd Ans. east
3rd Ans. 40 m
4th Ans. 40 m, east

TYPE -IV

15. A man walk in 1 km East. Now he turns south and walk 5 km again he turns East and walk 2 km. At last he turns north and walk 9 km. Now find that he in which direction and how far from the initial point?

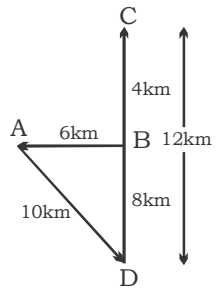
Sol.



In D ABC : AB = 3km
BC : 4 km
AC : $\sqrt{(3)^2+(4)^2}$
$\sqrt{9+16}$: $\sqrt{25}$: 5 km
5 km, North. east

16. A is 6 km West from B. And C is 4 km north to B. D is 12 km south from C. now D on which direction and how far from A.

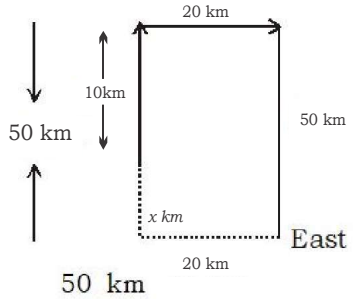
Sol.



BD = 8 km
BA : 6 km
AD : $\sqrt{(8)^2+(6)^2}$
$\sqrt{64+36}$
$\sqrt{100}$ = 10 km
10 km, South-West

17. A man walks 10km in north and turns his right. And walk 20 km. Again he turn right and walk 50 km if he is 20 km west from he initial point. Now find that he how much walk initially?

Sol.

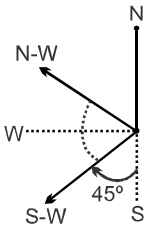


$10 + x = 50$

$x = 50 - 10 = 40$ km

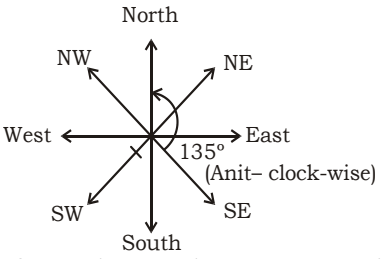
18. A man walks in south direction. After he walks 1 km he turn his right 45° and walk 2 km again he turn his right and walk same distance. Now find that in which direction is he going?

Sol.



A man is going in to south direction from there he turns 45° right means in sout west direction and from there right (90°) direction will be north west direction.

TYPE – V



19. If South-east becomes North, North-east becomes west and So on that what will west becomes?

Sol.

S.E $\xrightarrow{135° \text{ AC.W}}$ North

N.E $\longrightarrow$ West

West $\longrightarrow$ (South-east)

20. If North becomes North-east, South becomes?

Sol.

N $\xrightarrow{45° \text{ C.W}}$ North-east

South $\xrightarrow{45° \text{ C.W}}$ (South-west)

21. If South-east becomes South-west, then South becomes ?

Sol.

S.E $\xrightarrow{90° \text{ C.W}}$ South-west

S $\xrightarrow{90° \text{ C.W}}$? (West)

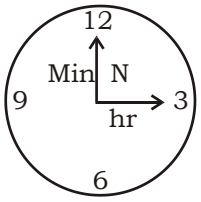
22. It is 3 O' clock if at into time the minute hand points towards North-east than in which hours would be?

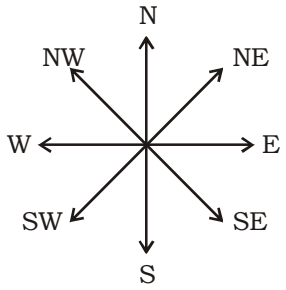
Sol. 3:00

~~Min~~ (North) $\xrightarrow{\text{clock-wise}}$ NE

~~Hr~~ (East) $\longrightarrow$ South east

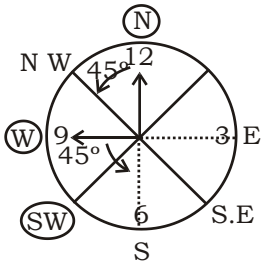
Actual direction





23. It is 9 O' clock, if at this time the hours hand points towards South-west than in which direction Minute would be?

Sol. 9:00



Hr $\rightarrow$ (West) $\xrightarrow{45° \text{ ACW}}$ S.W

Min $\rightarrow$ (North) $\longrightarrow$? North-west

Actual direction

24. It is 4:30 O' clock if at this time hours hand points towards South-west than in which direction minute would be?

Sol. 4:30

Hr $\rightarrow$ (South-east) $\xrightarrow{90° \text{ CW}}$ S.W

Min $\rightarrow$ (South) $\longrightarrow$ west

Actual direction

Ex.1

9:00

9:00 Min $\rightarrow$ North $\xrightarrow{45° \text{ C.W}}$ N.E

3:00 Hr $\rightarrow$ East $\xrightarrow{45° \text{ C.W}}$ S.E

Ex2.

7:30 Hr $\rightarrow$ (S.W) $\xrightarrow{45° \text{ C.W}}$ West

1:30 Hr $\rightarrow$ (N.W) $\longrightarrow$ (East)

Actual direction

Ex3.

10:00 Min $\rightarrow$ (North) $\longrightarrow$ N.E

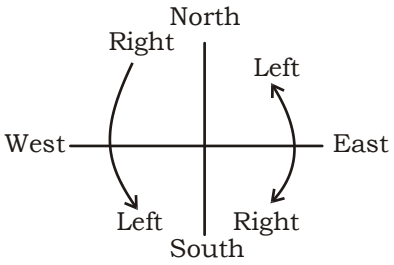
4:00 Min $\rightarrow$ (North) $\longrightarrow$ N.E

Actual direction

TYPE -VI

25. In the morning A man was performing Yoga with (i) Head down and legs up, if at this time his face towards west than which direction his left hand would be?

Sol.



Face ® west $\xrightarrow{\text{Reverse}}$ East

Left hand $\rightarrow$ (North)

Ex2. Face ® South $\xrightarrow{\text{Reverse}}$

North $\rightarrow$ Right hand $\rightarrow$? (East)

Face

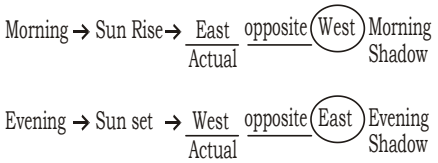
Ex3. Face ® East $\xrightarrow{\text{Reverse}}$ West

Face

Right hand $\rightarrow$? (North)

TYPE – VII

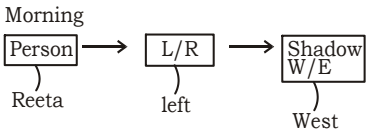
Shadow (opposite to sun)E/W



1. Right hand ® west face ® South
2. Left hand ® west face ® North
3. Right hand ® East face ® North
4. Left hand ® East face ® South

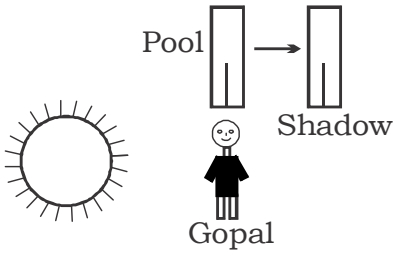
26. A morning two friend Reeta and Kavita talks to each other. If at the time Kavita shadow from the left side of Reeta, now find that Kavita face on which direction?

Sol.



27. An evening Gopal saw a pool . If at the time a pool shadow made his right, now find that Gopal face which direction?

Sol. Evening-Sun-West
Shadow-East



Gopal face in north

EXERCISE

1. A man facing towards North-West turns Left, Right, Right, Right, Left. in series. In which direction now he is?
   (a) North (b) South-West
   (c) South (d) North-East
2. A man facing towards South-East turns Left = 90°, Right = 135°, Let = 180°, Right = 45°, Left = 45° continuously. In which direction now he is?
   (a) South-West (b) North-East
   (c) North (d) East
3. From Point 'A' Raju walks 20 m. to the North Then turns Left and walks 20 m. to reach at point B. Find distance b/w A and B. ?
   (a) 20 m. (b) 40 m.
   (c) $400\sqrt{2}$ (d) $20\sqrt{2}$ m.
4. My face is in South Direction. I turns Right and walks 20 m. Then turns Right and walks 10 m. Then turns left and walks 10 m. Then turns right and walks 20 m. Again turns right and walks 60 m. In which direction I am from (starting) Initial point?
   (a) North (b) North-East
   (c) North-West (d) East
5. Rohit from point 'A' walks 20 m. to the east, Then turns right and walks 10 m. Again turns right and walks 9 m, Then turns left and walks 5 m, again turns left and walks 12 m, Again. Turn left walks 5 m and reached at point B. In which direction is he going now?
   (a) South (b) West
   (c) North (d) East
6. A man from point A walks 20 m. to the north, then turns left and walks 40 m. again turns left and walks 20 m. At last he turns right and walks 20 m. to reach at point B. Find distance and Direction from point A to B.?
   (a) 20 m./West
   (b) 40 m./East
   (c) 60 m./West
   (d)60 m./East
7. A man from point A walks 100 m. to the North direction, then walks 60 m. to the South then walks 30 m. to the east and reaches at point B. Find distance and direction from point A to point B.?
   (a) 70 m./East
   (b) 90 m./South
   (c) 50 m./North-East
   (d) 50 m./South-East
8. Rohit walks 100 m. to the East from point 'A' Then turns right and walks 100 m., Again turns right and walks 20 m., Again turns right and walks 250 m. and reached at point B. Find shortest distance b/w A, B?
   (a) 75 m. (b) 180 m.
   (c) 170 m. (d) 200 m.
9. Seema walks 7 m. to the South-East from point A. Then walks 14 m to the west, then walks 7 m. to the North-West. In last she walks 4 m. to the East and reached at point B. Find A B.?
   (a) 18 m. (b) 19 m.
   (c) $98\sqrt{2}$ m. (d) 10 m.
10. A man walked 60 m. to the East from point A, then turn right and walked 50 m. In last he turn left and went for 60 m. and reached at point B. Find AB?
    (a) 170 m. (b) 130 m.
    (c) 145 m. (d) 150 m.
11. Sumit walks 20 m. to the East from point 'A', Then walks 20 m. in South-West direction. Then walks 20 m in North-West direction and reaches at point B. Find distance b/w A and B.?
    (a) 0 m. (b) $(20\sqrt{2}-1)$ m.
    (c) 20 m. (d) $20\sqrt{2}$ m.
12. A man walks 30 m. to the North from point A then turns Left walks 10 m. Again turns left and walks 6 m, Then again turns left and walks 3 m and reach's at point B. Find distance and direction from A to B.?
    (a) 20 m. (S.W.) (b) 30 m. (S.E.)
    (c) 25 m. (N.E.) (d) 25 m. (N.W)
13. Rohan's schools's bus face was in North when it reached in school. After started from bus stand it was turn two times to the right, one time in left and then reached at school. In which direction was the face of bus when it was on bus-stand.
    (a) North (b) East
    (c) West (d) South

14. In the morning after sunrise Ram and Shyam talking with each other standing in front of each other. If the shadow of Ram falls left to the Shyam. then in which direction is Shyam's Face?
(a) East (b) South
(c) North (d) West

15. In the evening before Sunset at 6 P.M. Rohit stands in front of a 'Electric board'. If the shadow of Board falls just left to the Rohit. Then in which direction is Rohit's Face?
(a) East (b) North
(c) South (d) West

16. The Hour hand of a clock is in North. at4:30. Then Find direction of Minute hand at 7:00 o'clock.
(a) South (b) South-West
(c) South-East (d) East

17. The Minute hand of a clock is in North-East at 8:45. Then in which direction the Hour hand will be at 1:30.
(a) North (b) South-East
(c) South (d) North-East

18. The Minute hand of a clock is in North-East a 4:30. Then in which direction the hour hand will be at 10:30
(a) South (b) North-West
(c) West (d) North-East

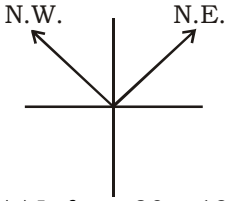
ANSWER KEYS

(Exercise- I)

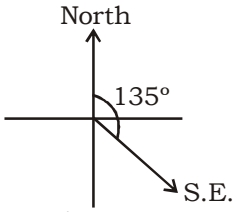
1. (d)	3. (d)	5. (c)	7. (c)	9. (d)	11. (b)	13. (c)	15. (c)	17. (c)	18. (a)
2. (c)	4. (b)	6. (c)	8. (c)	10. (b)	12. (d)	14. (c)	16. (b)		

SOLUTION

1. (d) Face ⇒ North - West
Turns ⇒ ~~Left~~, ~~Right~~, ~~Right~~, Right, ~~Left~~, ~~Right~~, ~~left~~
Now we will turn one time right (90°)
Face will be in North - East direction

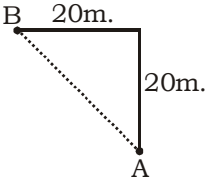


2. (c) Left ⇒ 90 + 180 + 45° =315°
Right = 135° + 45°= 180°
Left 315° – Right 180°
Left = 135°
We will rotate 135° Anticlock wise.



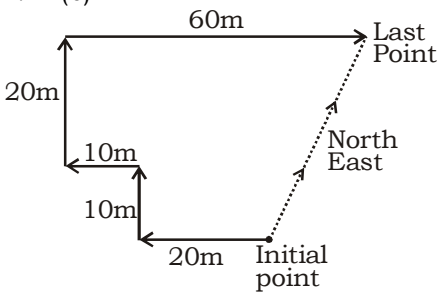
Ans. North

3. (d)



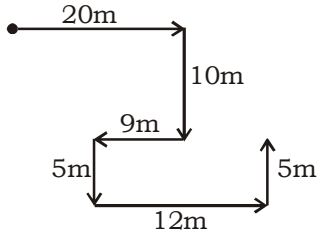
AB = $\sqrt{20^2+20^2}$
= $20\sqrt{2}$
Because Base
= Perpendicular = 20

4. (b)



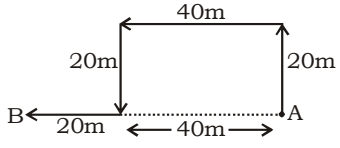
I was in the North - East from Initial point

5. (c)



Rohit is going in the North direction

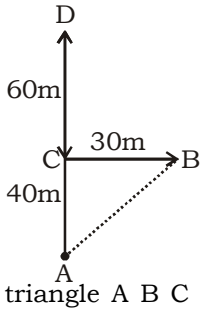
6. (c)



Total distance from A to B = 20 + 40 = 60 m

B is in West direction from point A

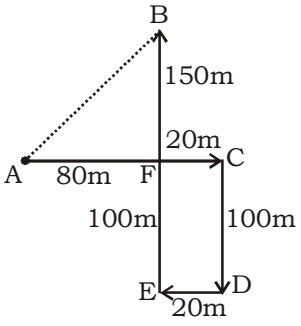
7. (c)



In triangle A B C
AB = $\sqrt{(AC)^2+(CB^2)}$
AB = $\sqrt{40^2+30^2}$
= $\sqrt{1600+900}$
= $\sqrt{2500}$ = 50M

B is in North - East direction from point A.

8. (c)

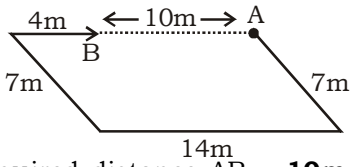


In triangle A B F

AB = $\sqrt{(150)^2 + (80)^2}$

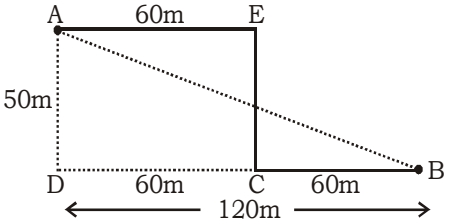
= $\sqrt{22500 + 6400}$ = $\sqrt{28900}$ = **170m**

9. (d)



Required distance AB = **10m**

10. (b)



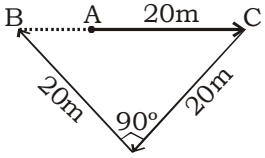
In triangle ADB

AB = $\sqrt{(120)^2 + (50)^2}$

= $\sqrt{14400 + 2500}$

= $\sqrt{16900}$ = **130 m**

11. (b)



BC = $\sqrt{(CD)^2 + (BD)^2}$

BC = $\sqrt{20^2 + 20^2}$

= $\sqrt{400 + 400}$

= $\sqrt{800}$

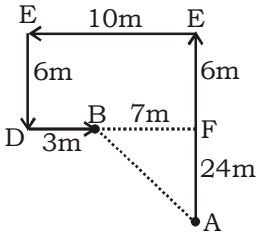
$20\sqrt{2}$ m

Then AB $\Rightarrow$ BC – AC

= $20\sqrt{2}$ – 20

$20(\sqrt{2} - 1)$m

12.(d)



In triangle ABF

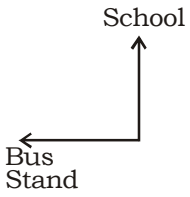
AB = $\sqrt{(AF)^2 + (FB)^2}$

$\sqrt{(24)^2 + (7)^2}$

$\sqrt{576 + 49}$

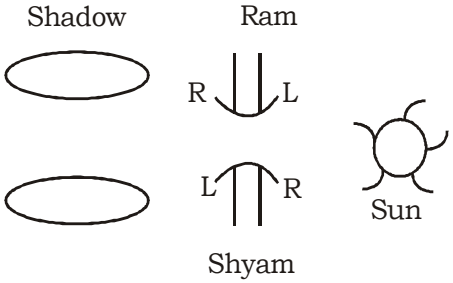
$\sqrt{625}$ = **25m (N.W)**

13. (c)



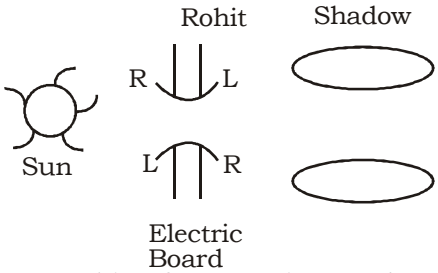
From bus stand bus turns two times right and one time left. Hence we can cancel A right turn to a left turn. So Bus Face in **west** on Bus stand.

14. (c)



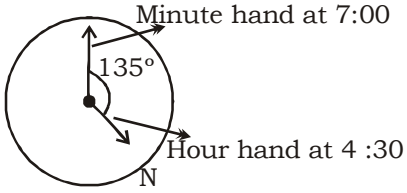
Shadow is falling in the left of Shyam. Hence Shyam's face was in **North**

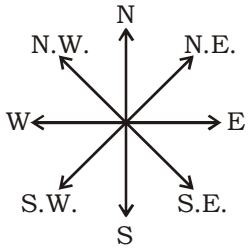
15. (c)



Rohit's face was in **South**

16. (b)

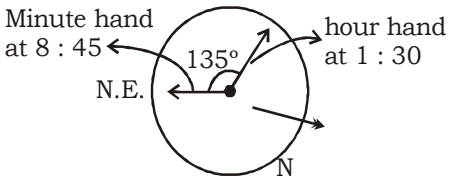


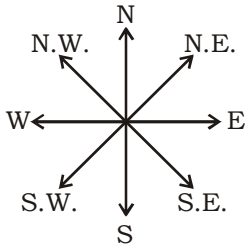


We will rotate 135° Anticlock wise from North.

Ans. **South- West**

17. (c)

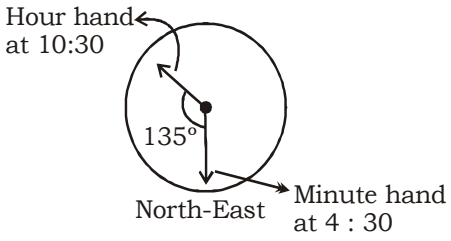




We will rotate 135° clockwise from N.E.

Ans. South

18. (a)



We will rotate 135° anti clockwise from N.E.

Ans. South