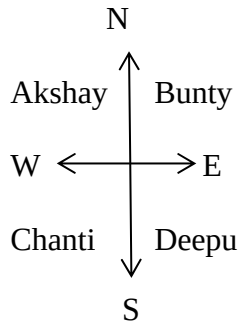
LOGICAL REASONING

MODULE 9 – DIRECTION SENSE TEST

1. Four friends Akshay, Bunty, Chanti and Deepu live in a same locality. The house of Bunty is in the east of Akshay's house but in the north of Chanti's house. The house of Chanti is in the west of Deepu's house. Deepu's house is in which direction of Akshay's house?

(a) South-East (b) North-East (c) East (d) Data is inadequate

Solution:

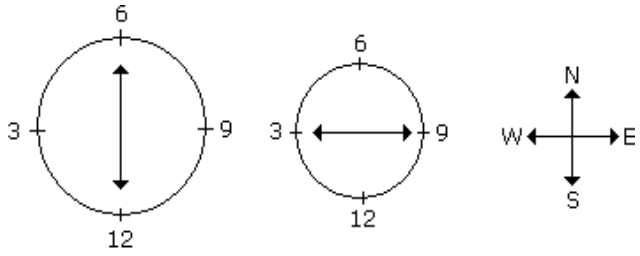


Therefore, Deepu's house is in the South-East direction of Akshay.

2. 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**

Solution:



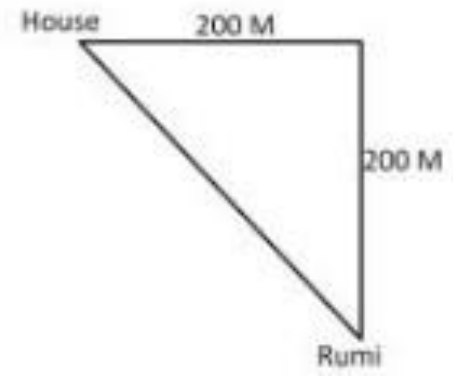
At 9.15 P.M., the minute hand will point towards west.

3. Rumi starts from her house and moves 200 m towards north. Then she turns left and moves further 200 m. Had she gone directly to the place where she is now, she would have saved herself a walking of an extra.

(a) 200 (√2-1) m **(b) (400-200√2) m** **(**c) (400-200 x 1.5) m (d) cannot say

Solution:

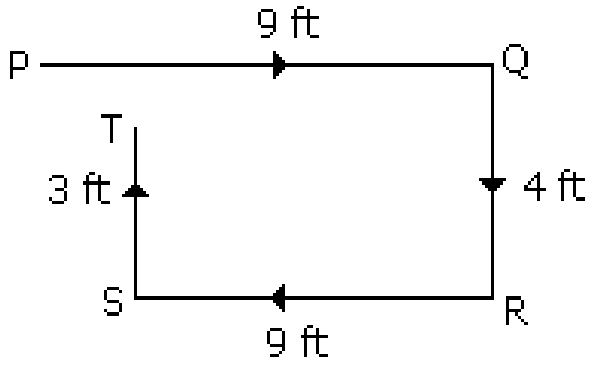
$$\text{Distance} = \sqrt{(200^2 + 200^2)} = 200\sqrt{2}$$
$$\text{Distance saved} = 400 - 200\sqrt{2}$$



4. Umesh directly went from P to Q which is at a distance of 9 feet. Then he turns to the right and walked 4 feet. After this he turned to the right and walked a distance which is equal from P to Q. Finally, he turned to the right and walked 3 feet. How far is he now from P?

(a) 6 feet (b) 5 feet (**c) 1 feet** (d) 0 feet

Solution:



Required distance = PT

= 4 - 3

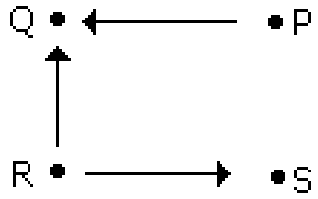
= 1 ft.

5. If A x B means A is to the south of B; A + B means A is to the north of B; A % B means A is to the east of B; A - B means A is to the west of B; then in P % Q + R - S, S is in which direction with respect to Q?

(a) South-West **b) South-East** (c) North-East (d) North-West

Solution:

According to P % Q + R - S



S is in the South-East of Q.

6. Mr. M walked 20m towards the west and turned left and again walked 15m. Then he moved anti-clockwise and walked 20m. At last, he moved clockwise and walked another 10m. How far is Mr. M now from his initial position?

(a) 25m (b) 26m (c) 27m (d) 28m

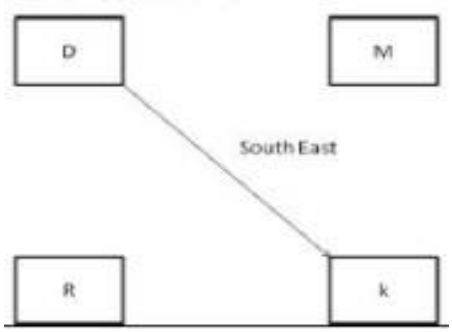
Solution:

The distance between initial and final position can be easily calculated: 15m + 10m = 25m.

7. Town D is to the West of town M. Town R is to the South of town D. Town K is to the East of town R. Town K is towards which direction of town D?

(a) North-East (b) East (**c) South-East** (d) South

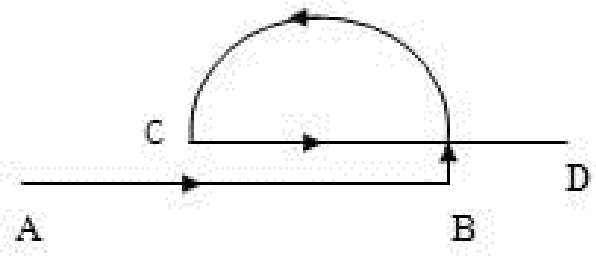
Solution:



8. A river flows West to East and on the way turns left and goes in a semi-circle round a hillock, and then turns left at right angles. In which direction is the river finally flowing?

(a) North (b) South **(c) East** (d) West

Solution:

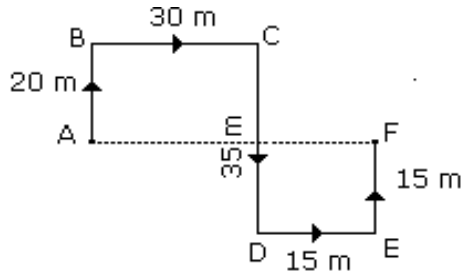


The river flows eastwards from A towards B, turns left and follows a semi-circular path to reach C where it turns left and flows eastwards towards D.

9. 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**

Solution:



Required distance = AF

= 30 + 15

= 45 m.

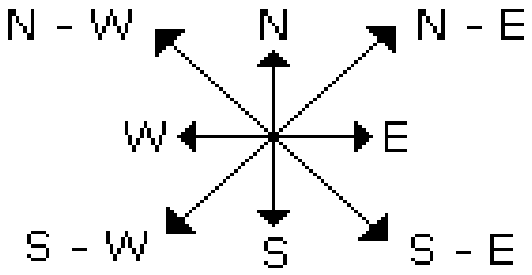
From the above diagram, F is in East direction from A.

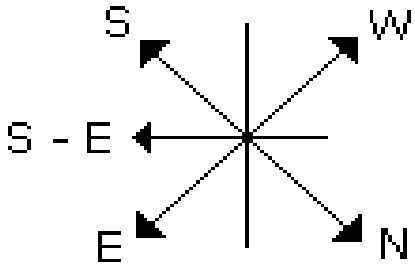
Hence the required answer is '45 m East'.

10. If South-East becomes North, North-East becomes West and so on. What will West become?

a) South-East (b) North-West (c) North-East (d) South-West

Solution:



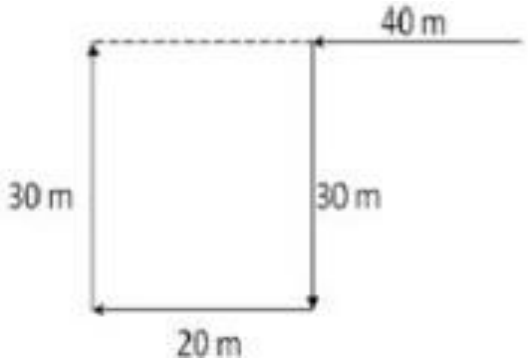


It is clear from the diagrams that new name of West will become South-East.

11. W walked 40 metres towards West, took a left turn and walked 30 metres. He then took a right turn and walked 20 metres. He again took a right turn and walked 30 metres. How far was he from the starting point?

(a) 90 metres (**b) 60 metres** (c) 70 metres (d) cannot be determined

Solution:



12. One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing?

a) East **(b) South** (c) West (d) Data Inadequate

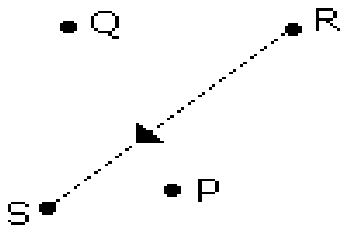
Solution:

Sun rises in the east in the morning. Since the shadow of Suresh falls to his right. So he is facing South.

13. Village Q is to the North of village P. Village R is to the East of Village Q. Village S is to the left of village P. In which direction is Village S with respect to Village R?

(a) West **(b) South-West** **(**c) South (d) North-West

Solution:

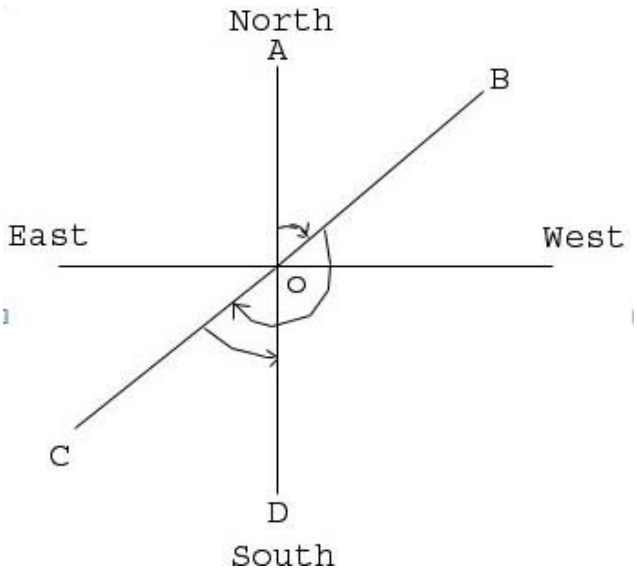


S is to the South-West of R.

14. 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. Which direction he is facing now?

(a) North (b) East (c) West **(d) South**

Solution:

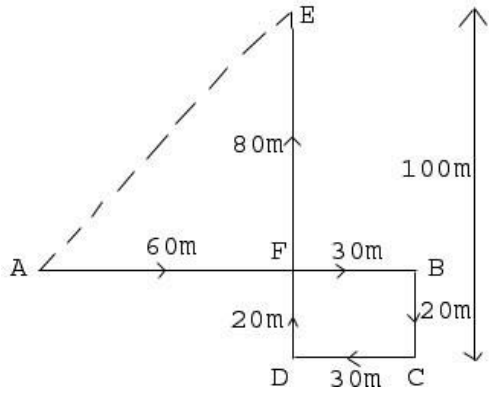


The man firstly faces the direction OA. On moving 45 degree clockwise, he faces the direction OB. Now again he moved 180 degree clockwise, now he will be facing OC. From here he moved 45 degree anticlockwise; finally, he is facing OD, which is South direction.

15. A child is looking for his father. He went 90 meters in the east before turning to his right. He went 20 meters before turning to is right again to look for his father at his uncle's place 30 meters from this point. His father was not there. From there, he went 100 meters to his north before meeting his father in a street. How far did the son meet his father from the starting point?

(a) 80 m (b) 90 m **(c) 100 m** (d) 110 m

Solution:



Clearly, the child moves from A to B 90 metres eastwards upto B, then turns right and moves 20 metre upto C, then turns right and moves upto 30 metre upto D. Finally he turns right and moves upto 100 metre upto E.

So AB = 90 metre, BF = CD = 30 metre,
So, AF = AB - BF = 60 metre

Also DE = 100 metre, DF = BC = 20 metre
So, EF = DE - DF = 80 metre

as we can see in image that triangle AFE is a right angled triangle and we are having two sides, need to calculate third one, so we can apply Pythagoras theorem here

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

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

$= \sqrt{3600 + 6400}$

$= \sqrt{10000}$

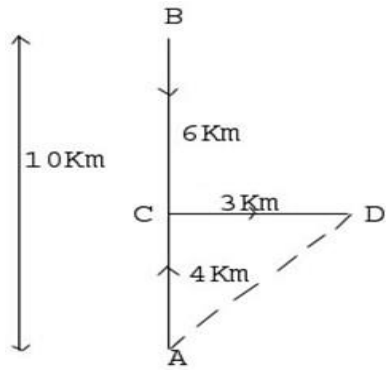
AE = 100 m

HOME WORK

16. 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**

Solution:



Clearly, Kunal moves from A 10 Km northwards upto B, then moves 6 Km southwards upto C, turns towards east and moves 3 km upto D.

Then AC = (AB-BC) = 4 Km

So Kunal distance from starting point A

AD = $\sqrt{AC^{\$} + CD^{\$}}$

= $\sqrt{4^{\$} + 3^{\$}}$

= $\sqrt{16 + 9}$

= $\sqrt{25}$

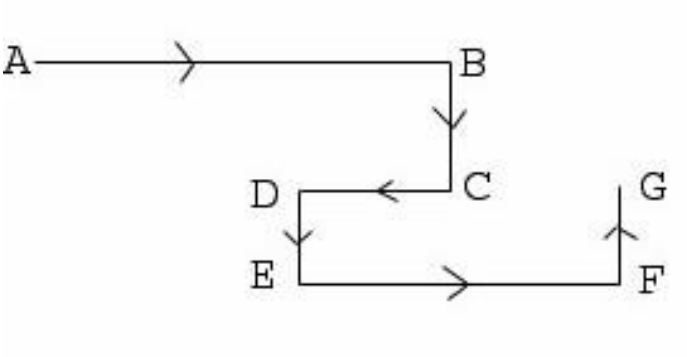
AE = 5 m

So AD is 5 Km also with reference to starting point Kunal's direction is North-East.

17. A dog runs 20 metres towards East and turns right, runs 10 metres and turns to right, runs 9 metres and again turns to left, runs 5 metres and then turns to left, runs 12 metres and finally turns to left and runs 6 metres. Now in which direction is the dog facing?

(a) South **(b) North** (c) East (d) West

Solution:

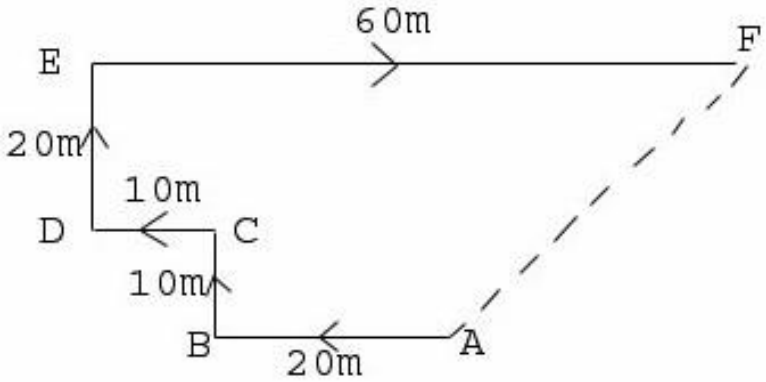


Now dog is facing north.

18. I am facing South. I turn right and walk 20 metres. Then I turn right again and walk 10 metres. Then I turn left and walk 10 metres and then turning right walk 20 metres. Then I turn right again and walk 60 metres. In which direction am I from the starting point?

(a) North-East (b) North-West (c) North (d) West

Solution:



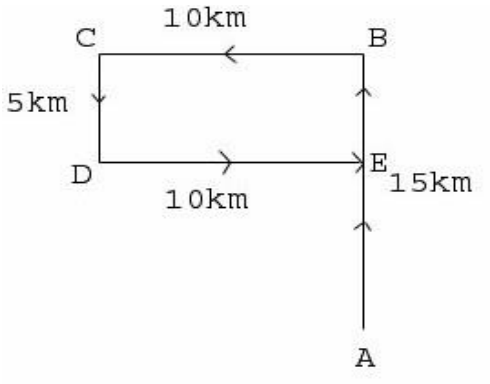
Please refer to figure for the movements.

Final direction will be north-east with reference to the starting position.

19. From his house, Lokesh 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) North (b) South (c) East (d) West

Solution:

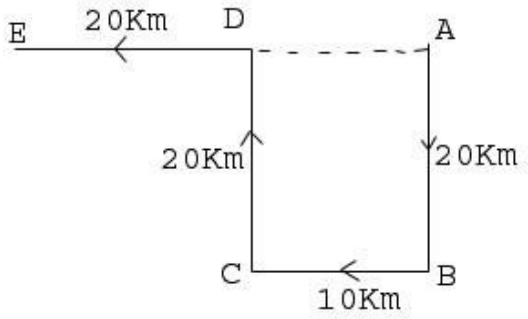


He is to the North from his house.

20. 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

Solution:



Raviraj starts from home at A, moves 20 Km in south upto B. Then he turns right and moves 10 Km upto C, then he turns right and moves 20 Km upto D, then he turns lefts and moves 20 Km upto E.

So from image it is clear that, if he moves straight then he will have to move AD+DE, AD = BC = 10 Km

So, he will have to move 10 + 20 = 30 Km