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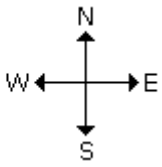
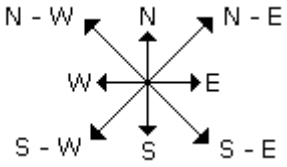
Introduction:

There are four main directions - **East**, **West**, **North** and **South** as shown below:



There are four cardinal directions - **North-East (N-E)**, **North-West (N-W)**, **South-East (S-E)**, and **South-West (S-W)** as shown below:



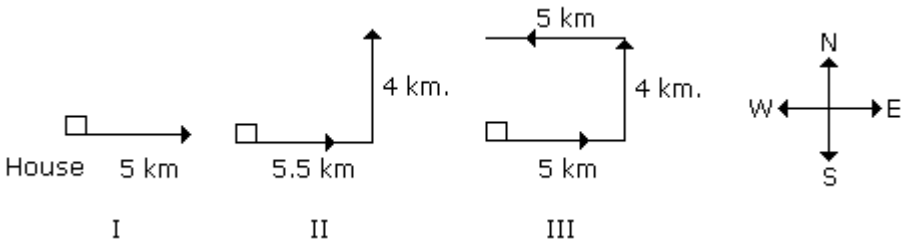
1. At the time of sunrise if a man stands facing the east, his shadow will be towards west.
2. At the time of sunset the shadow of an object is always in the east.
3. If a man stands facing the North, at the time of sunrise his shadow will be towards his left and at the time of sunset it will be towards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

Main types of questions are given below:

Type 1:

Siva starting from his house, goes 5 km in the East, then he turns to his left and goes 4 km. Finally he turns to his left and goes 5 km. Now how far is he from his house and in what direction?

Solution:



From third position it is clear he is 4 km from his house and is in North direction.

Type 2:

Suresh starting from his house, goes 4 km in the East, then he turns to his right and goes 3 km. What minimum distance will be covered by him to come back to his house?

Solution:

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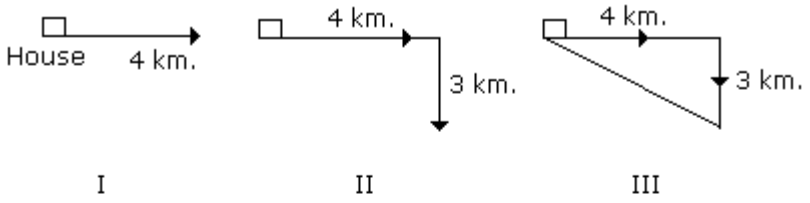


I II III

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

$= \sqrt{16 + 9}$

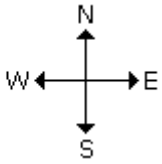
$= \sqrt{25}$

$= 5$ km.

Type 3:

One morning after sunrise Juhi while going to school met Lalli at Boring road crossing. Lalli's shadow was exactly to the right of Juhi. If they were face to face, which direction was Juhi facing?

Solution: In the morning sunrises in the east.



So in morning the shadow falls towards the west.

Now Lalli's shadow falls to the right of the Juhi. Hence Juhi is facing South.

Type 4:

Hema starting from her house walked 5 km to reach the crossing of Palace. In which direction she was going, a road opposite to this direction goes to Hospital. The road to the right goes to station. If the road which goes to station is just opposite to the road which IT-Park, then in which direction to Hema is the road which goes to IT-Park?

Solution:

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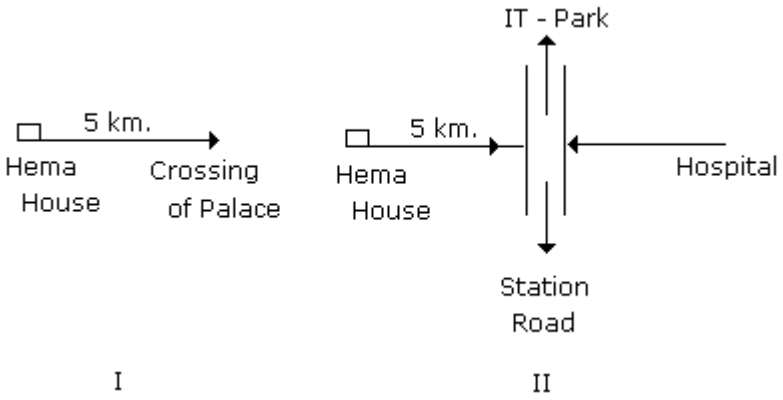

From II it is clear that the road which goes to IT-Park is left to Hema.

SECTION-1

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

Answer & Explanation

Answer: Option **C**

Explanation:

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

Answer & Explanation

Answer: Option **D**

Explanation:

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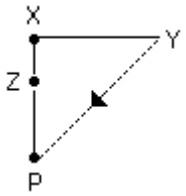


P is in South-West of Y.

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

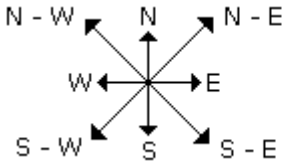
A. North-East **B.** North-West

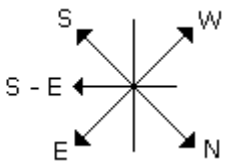
C. South-East **D.** South-West

Answer & Explanation

Answer: Option **C**

Explanation:





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

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

Answer & Explanation

Answer: Option **D**

Explanation:

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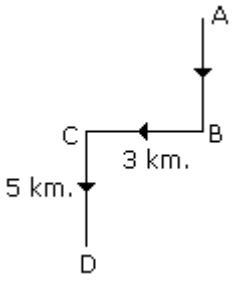


Hence required direction is South-West.

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. ?

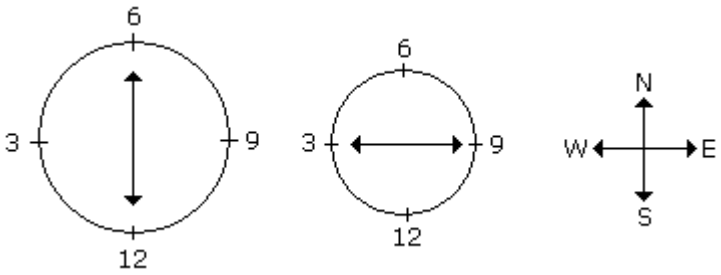
A. South-East **B.** South

C. North **D.** West

Answer & Explanation

Answer: Option **D**

Explanation:



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

Answer & Explanation

Answer: Option **D**

Explanation:

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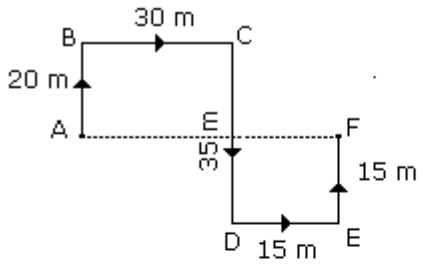


Required distance = AF

= 30 + 15

= 45 m.

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

Hence the required answer is '45 m East'.

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 the main road. In the mean time, 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?

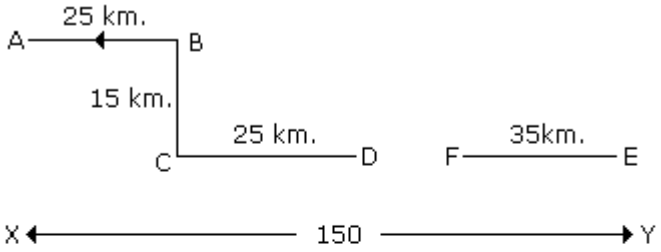
A. 65 km **B.** 75 km

C. 80 km **D.** 85 km

Answer & Explanation

Answer: Option **A**

Explanation:



Required distance = DF

= 150 - (25 + 25 + 35)

= 150 - 85

= 65 km.

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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?

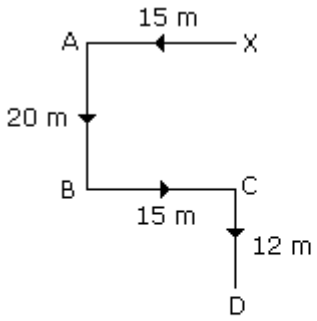
A. 32 m, South **B.** 47 m, East

C. 42 m, North **D.** 27 m, South

Answer & Explanation

Answer: Option **A**

Explanation:



Required distance = 20 + 12

= 32 m in south direction

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

Answer & Explanation

Answer: Option **B**

Explanation:

In the evening sun sets in West. Hence then any shadow falls in the East. Since Hema's shadow was to the right of Hema. Hence Rekha was facing towards South.

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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?

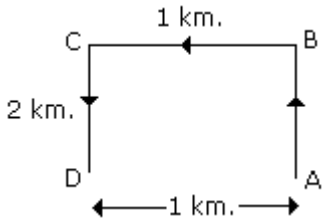
A. 1 km **B.** 2 km

C. 3 km **D.** 5 km

Answer & Explanation

Answer: Option **B**

Explanation:



The boy rode 2 km. Northward.

11. 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?

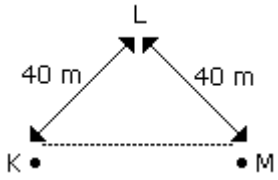
A. East **B.** West

C. North-East **D.** South

Answer & Explanation

Answer: Option **A**

Explanation:



Hence M is in the East of K.

12. A man walks 2 km towards North. Then he turns to East and walks 10 km. After this he turns to North and walks 3 km. Again he turns towards East and walks 2 km. How far is he from the starting point?

A. 10 km **B.** 13 km

C. 15 km **D.** None of these

Answer & Explanation

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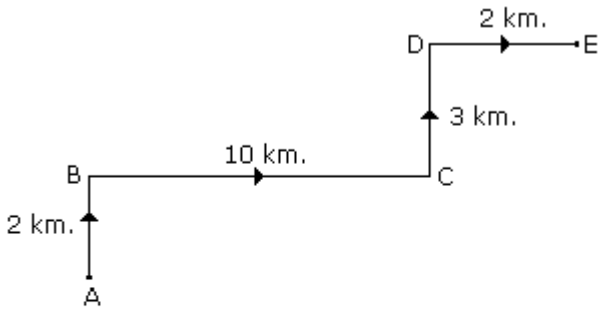
Answer: Option **B**

Explanation:



Required distance = AE

$= \sqrt{5^2 + 12^2}$

= 13 km.

13. The length and breadth of a room are 8 m and 6 m respectively. A cat runs along all the four walls and finally along a diagonal order to catch a rat. How much total distance is covered by the cat?

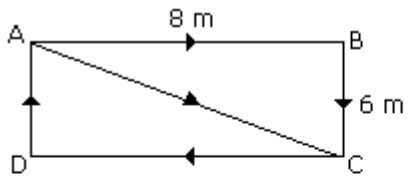
A. 10 **B.** 14

C. 38 **D.** 48

Answer & Explanation

Answer: Option **C**

Explanation:



Required distance = $8 + 6 + 8 + 6 + \sqrt{8^2 + 6^2}$

$= 28 + \sqrt{100}$

= 28 + 10

= 38 m

14. One morning sujata 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.

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Now in which direction is she facing?

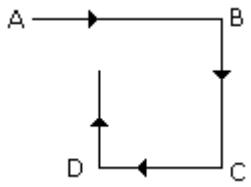
A. North **B.** South

C. North-East **D.** South-West

Answer & Explanation

Answer: Option **A**

Explanation:



Hence finally Sujata will face towards North.

15. Some boys are sitting in three rows all facing North such that A is in the middle row. P is just to the right of A but in the same row. Q is just behind of P while R is in the North of A. In which direction of R is Q?

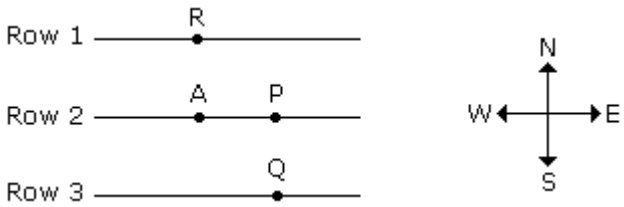
A. South **B.** South-West

C. North-East **D.** South-East

Answer & Explanation

Answer: Option **D**

Explanation:



Q is in South-East of R.

16. One morning after sunrise, Vimal started to walk. During this walking he met Stephen who was coming from opposite direction. Vimal watch that the shadow of Stephen to the right of him (Vimal). To Which direction Vimal was facing?

A. East **B.** West

C. South **D.** Data inadequate

Answer & Explanation

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Answer: Option **C**

Explanation:

Sun rises in the east. So the shadow of a man will always falls towards the west. Since the shadow of Stephen is to the right of Vimal. Hence Vimal is facing towards South.

17. Golu started from his house towards North. After covering a distance of 8 km. he turned towards left and covered a distance of 6 km. What is the shortest distance now from his house?

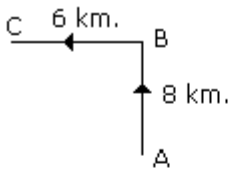
A. 10 km. **B.** 16 km.

C. 14 km **D.** 2 km.

Answer & Explanation

Answer: Option **A**

Explanation:



Required distance = AC

$$= \sqrt{8^2 + 6^2}$$

$$= \sqrt{64 + 36}$$

$$= \sqrt{100}$$

$$= 10 \text{ km.}$$

18. P started from his house towards west. After walking a distance of 25 m. He turned to the right and walked 10 m. He then again turned to the right and walked 15 m. After this he is to turn right at 135° and to cover 30 m. In which direction should he go?

A. West **B.** South

C. South-West **D.** South-East

Answer & Explanation

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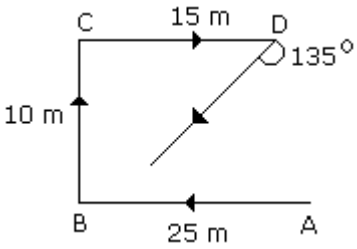
Answer: Option **C**

Explanation:



Hence he should go in the South-West direction.

19. X started to walk straight towards south. After walking 5 m he turned to the left and walked 3 m. After this he turned to the right and walked 5 m Now to which direction X is facing?

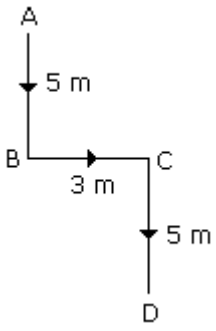
A. North-East **B.** South

C. North **D.** South-West

Answer & Explanation

Answer: Option **B**

Explanation:



Hence X will face in the end towards South.

20. Hemant in order to go to university started from his house in the east and came to a crossing. The road to the left ends in a theatre, straight ahead is the hospital. In which direction is the university?

A. North **B.** South

C. East **D.** West

Answer & Explanation

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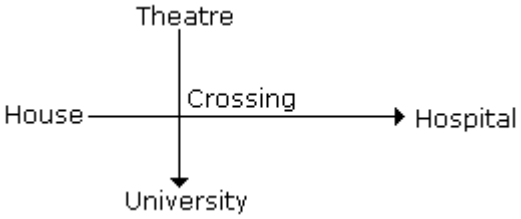
Answer: Option **B**

Explanation:



Therefore university is in South.

21. After walking 6 km, I turned to the right and then walked 2 km. After then I turned to the left and walked 10 km. In the end, I was moving towards the North. From which direction did I start my journey?

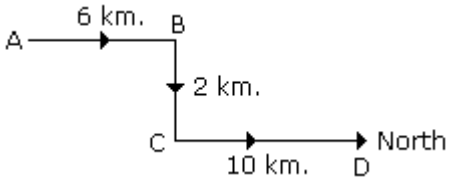
A. North **B.** South

C. East **D.** West

Answer & Explanation

Answer: Option **B**

Explanation:



The journey was started from the South.

22. Ravi left home and cycled 10 km towards South, then turned right and cycled 5 km and then again turned right and cycled 10 km. After this he turned left and cycled 10 km. How many kilometers will he have to cycle to reach his home straight?

A. 10 km **B.** 15 km

C. 20 km **D.** 25 km

Answer & Explanation

Answer: Option **B**

Explanation:

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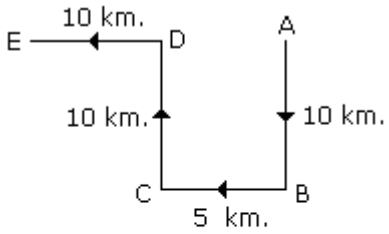


Required distance = AE

= 5 + 10

= 15 km.

23. Reena walked from A to B in the East 10 feet. Then she turned to the right and walked 3 feet. Again she turned to the right and walked 14 feet. How far is she from A?

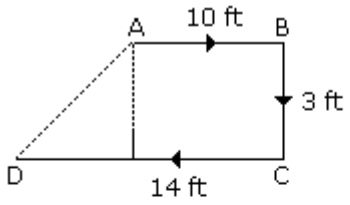
A. 4 feet **B.** 5 feet

C. 24 feet **D.** 27 feet

Answer & Explanation

Answer: Option **B**

Explanation:



Required distance = AD

$= \sqrt{3^2 + (14 - 10)^2}$

$= \sqrt{9 + 16}$

= 5 ft

24. One morning after sunrise Nivedita and Niharika were talking to each other face to face at Dalphin crossing. If Niharika's shadow was exactly to the right of Nivedita, Which direction Niharika was facing?

A. North **B.** South

C. East **D.** Data is inadequate

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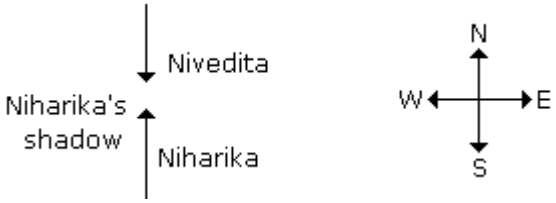
Answer & Explanation

Answer: Option **A**

Explanation:



In the morning sun rises in the East. Hence then any shadow falls in the West. Since Nikharia's shadow was exactly to the right of Nivedita. Hence Nikharia is facing towards North.

25. 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

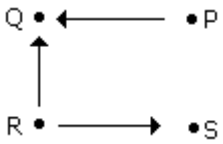
C. North-East **D.** North-West

Answer & Explanation

Answer: Option **B**

Explanation:

According to P % Q + R - S



S is in the South-East of Q.

26. 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 is inadequate

Answer & Explanation

Answer: Option **B**

Explanation:

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

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facing South.

27. A child went 90 m in the East to look for his father, then he turned right and went 20 m. After this he turned right and after going 30 m he reached to his uncle's house. His father was not there. From there he went 100 m to his north and met his father. How far did he meet his father from the starting point?

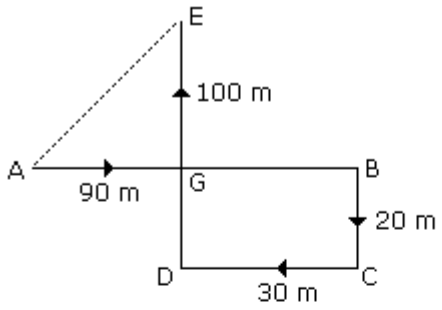
A. 80 m **B.** 100 m

C. 140 m **D.** 260 m

Answer & Explanation

Answer: Option **B**

Explanation:



Required distance = AE

$$= \sqrt{AG^2 + EG^2}$$

$$= \sqrt{(90 - 30)^2 + (100 - 20)^2}$$

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

$$= \sqrt{3600 + 6400}$$

$$= \sqrt{10000}$$

$$= 100 \text{ m}$$

28. Four friends A, B, C and D live in a same locality. The house of B is in the east of A's house but in the north of C's house. The house of C is in the west of D's house. D's house is in which direction of A's house?

A. South-East **B.** North-East

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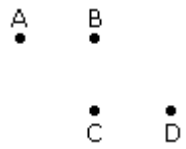
C. East **D.** Data is inadequate

Answer & Explanation

Answer: Option **A**

Explanation:



Therefore, D's house is in the South-East direction of A.

29. Umesh directly went from P, to Q which is 9 feet distant. 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?

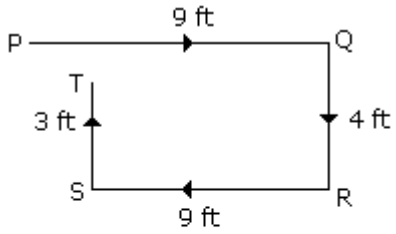
A. 6 feet **B.** 5 feet

C. 1 feet **D.** 0 feet

Answer & Explanation

Answer: Option **C**

Explanation:



Required distance = PT

= 4 - 3

= 1 ft.

30. Shyam walks 5 km towards East and then turns left and walks 6 km. Again he turns right and walks 9 km. Finally he turns to his right and walks 6 km. How far is he from the starting point?

A. 26 km **B.** 21 km

C. 14 km **D.** 9 km

Answer & Explanation

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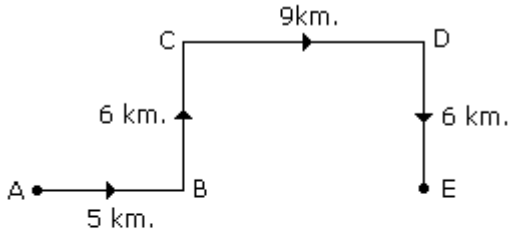
Answer: Option **C**

Explanation:



Required distance = AE

= 5 + 9

= 14 km.

31. Amit started walking positioning his back towards the sun. After some time, he turned left, then turned right and towards the left again. In which direction is he going now?

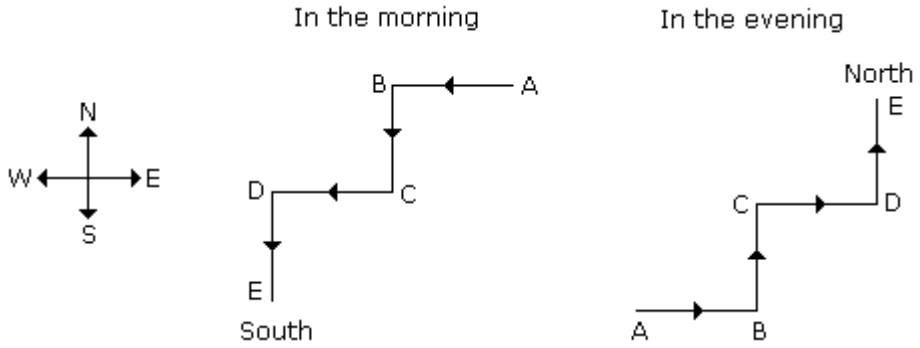
A. North or South **B.** East or West

C. North or West **D.** South or West

Answer & Explanation

Answer: Option **A**

Explanation:



If he starts walking the morning then finally he will face towards South and if he starts in the evening then finally he will face towards North.

32. Rohit walked 25 m towards south. Then he turned to his left and walked 20 m. He then turned to his left and walked 25 m. He again turned to his right and walked 15 m. At what distance is he from the starting point and in which direction?

A. 35 m East **B.** 35 m North

C. 30 m West **D.** 45 m East

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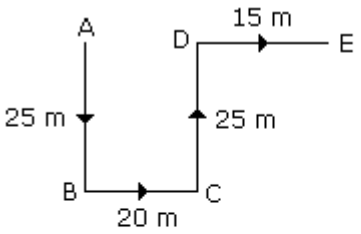
Answer & Explanation

Answer: Option **A**

Explanation:



Required distance = AE

= 20 + 15

= 35 m towards east.

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

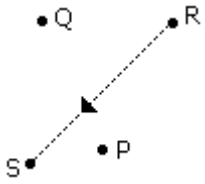
A. West **B.** South-West

C. South **D.** North-West

Answer & Explanation

Answer: Option **B**

Explanation:



S is to the South-West of R.

34. Radha moves towards South-East a distance of 7 km, then she moves towards West and travels a distance of 14 km. From here she moves towards North-West a distance of 7 km and finally she moves a distance of 4 km towards east. How far is she now from the starting point?

A. 3 km **B.** 4 km

C. 10 km **D.** 11 km

Answer & Explanation

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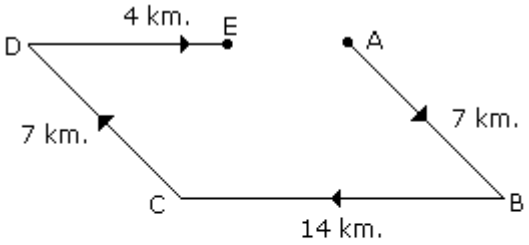
Answer: Option **C**

Explanation:



Required distance = AE

= 14 - 4

= 10 km.

35. Sundar runs 20 m towards East and turns to right and runs 10 m. Then he turns to the right and runs 9 m. Again he turns to right and runs 5 m. After this he turns to left and runs 12 m and finally he turns to right and 6 m. Now to which direction is Sundar facing?

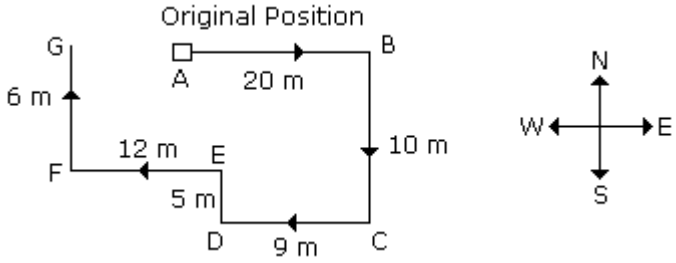
A. East **B.** West

C. North **D.** South

Answer & Explanation

Answer: Option **C**

Explanation:



Therefore, it is clear that Sundar will face towards North.

36. 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. 20 km. **B.** 30 km.

C. 50 km. **D.** 60 km.

Answer & Explanation

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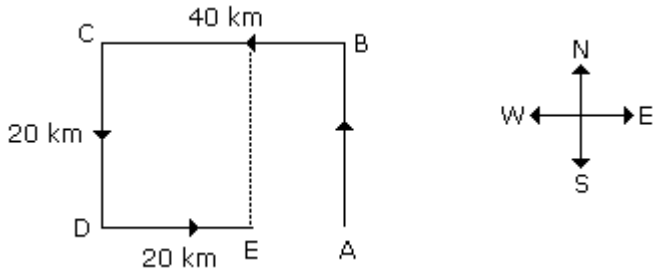
Answer: Option **A**

Explanation:



Required distance = 40 - 20 = 20 km.

37. From his house, Lokesh went 15 km to the North. Then he turned west and covered 10 km. Then he turned south and covered 5 km. Finally turning to the east, he covered 10 km. In which direction is he from his house?

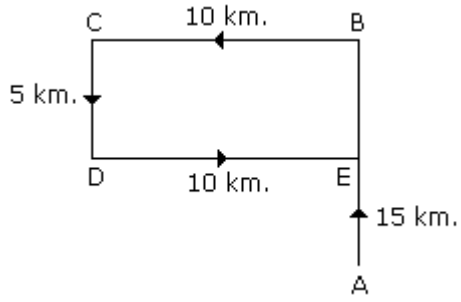
A. East **B.** West

C. North **D.** South

Answer & Explanation

Answer: Option **C**

Explanation:



Therefore, it is clear that he is in the North from his house.

SECTION-2

Dev, Kumar, Nilesh, Ankur and Pintu are standing facing to the North in a playground such as given below:

1. Kumar is at 40 m to the right of Ankur.
2. Dev is are 60 m in the south of Kumar.
3. Nilesh is at a distance of 25 m in the west of Ankur.

4. Pintu is at a distance of 90 m in the North of Dev.

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1. Which one is in the North-East of the person. Who is to the left of Kumar?

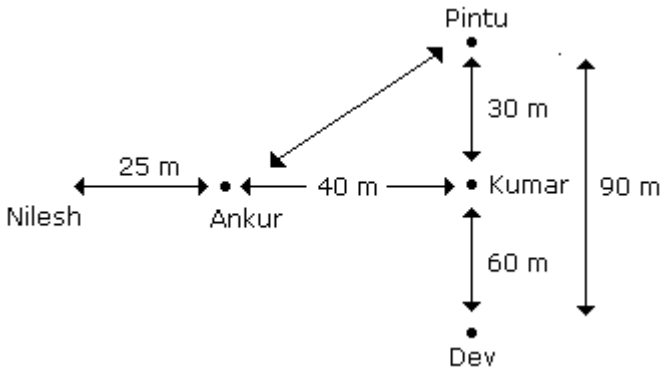
A. Dev **B.** Nilesh

C. Ankur **D.** Pintu

Answer & Explanation

Answer: Option **D**

Explanation:



Ankur is in the left of Kumar. Hence Pintu is in North-East of Ankur.

2. 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

Answer & Explanation

Answer: Option **A**

Explanation:

Required distance = 25 m + 40 m + 60 m + 90 m

Required distance = 215 m

SECTION-3

1. Six flats on a floor in two rows facing North and South are allotted to P, Q, R, S, T and U.
2. Q gets a North facing flat and is not next to S.
3. S and U get diagonally opposite flats.

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4. R next to U, gets a south facing flat and T gets North facing flat.

1. If the flats of P and T are interchanged then whose flat will be next to that of U?

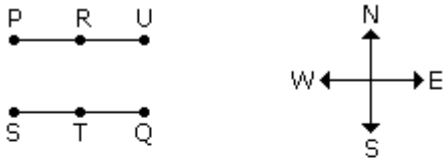
A. P **B.** Q

C. R **D.** T

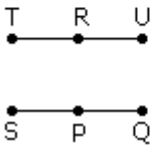
Answer & Explanation

Answer: Option **C**

Explanation:



Interchanging flats P and T



Hence flat R will be next to U.

2. Which of the following combination get south facing flats?

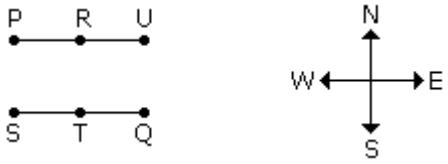
A. QTS **B.** UPT

C. URP **D.** Data is inadequate

Answer & Explanation

Answer: Option **C**

Explanation:



Hence URP flat combination get south facing flats.

3. The flats of which of the other pair than SU, is diagonally opposite to each other?

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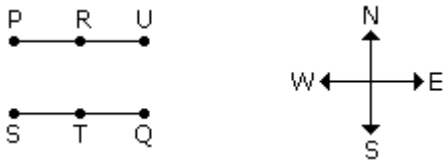
A. QP **B.** QR

C. PT **D.** TS

Answer & Explanation

Answer: Option **A**

Explanation:



Hence QP is diagonally opposite to each other.

4. Whose flat is between Q and S?

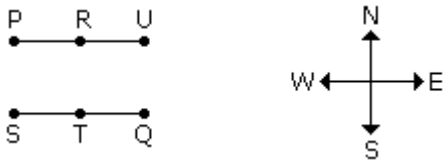
A. T **B.** U

C. R **D.** P

Answer & Explanation

Answer: Option **A**

Explanation:



Hence flat T is between Q and S.

SECTION-4

1. 8-trees → mango, guava, papaya, pomegranate, lemon, banana, raspberry and apple are in two rows 4 in each facing North and South.
2. Lemon is between mango and apple but just opposite to guava.
3. Banana is at one end of a line and is just next in the right of guava or either banana tree is just after guava tree.
4. Raspberry tree which at one end of a line, is just diagonally opposite to mango tree.

1. Which of the following statements is definitely true?

A. Papaya tree is just near to apple tree.

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B. Apple tree is just next to lemon tree.

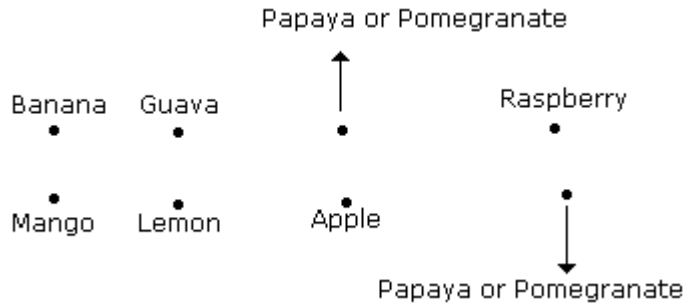
C. Raspberry tree is either left to Pomegranate or after.

D. Pomegranate tree is diagonally opposite to banana tree.

Answer & Explanation

Answer: Option **B**

Explanation:



2. Which tree is just opposite to raspberry tree?

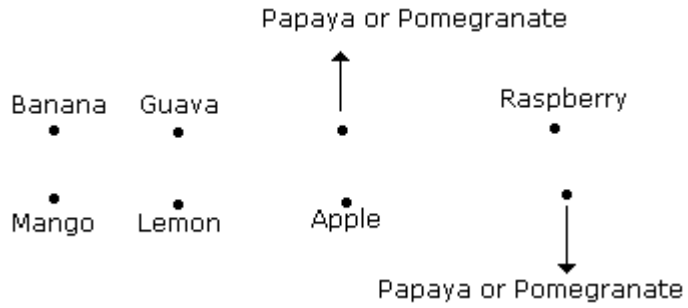
A. Papaya **B.** Pomegranate

C. Papaya or Pomegranate **D.** Data is inadequate

Answer & Explanation

Answer: Option **C**

Explanation:



3. Which tree is just opposite to banana tree?

A. Mango **B.** Pomegranate

C. Papaya **D.** Data is inadequate

Answer & Explanation

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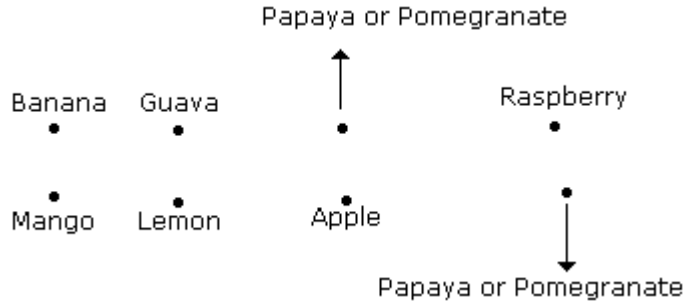
Answer: Option **A**

Explanation:



SECTION-5

1. A # B means B is at 1 metre to the right of A.
2. A $ B means B is at 1 metre to the North of A.
3. A * B means B is at 1 metre to the left of A.
4. A @ B means B is at 1 metre to the south of A.

5. In each question first person from the left is facing North.

1. According to X @ B * Y, Y is in which direction with respect to X?

A. North **B.** South

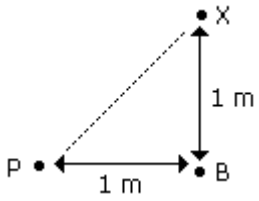
C. North-East **D.** South-West

Answer & Explanation

Answer: Option **D**

Explanation:

According to X @ B * Y



Hence Y is in South-West of X.

2. According to M # N $ T, T is in which direction with respect to M?

A. North-West **B.** North-East

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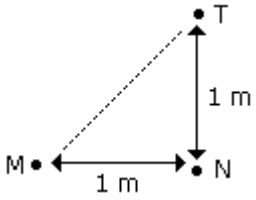
C. South-West **D.** South-East

Answer & Explanation

Answer: Option **B**

Explanation:

According to M # N $ T



Hence T is in the North-East of M.

3. According to P # R $ A * U, in which direction is U with respect to P?

A. East **B.** West

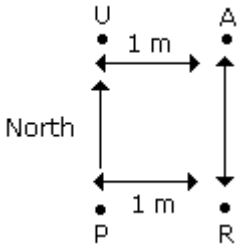
C. North **D.** South

Answer & Explanation

Answer: Option **C**

Explanation:

According to P # R $ A * U



Hence U is in North direction with respect to P.

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