

DIRECTION AND DISTANCES

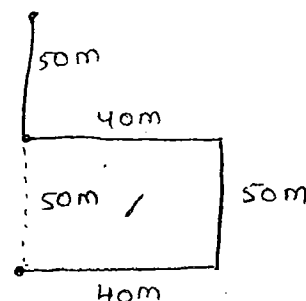
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1. A man moves towards east and covers a distance of 40m then turns north and covers a distance of 50m. Then turns west and covers a distance of 40m, then turns north and covers 50m. How far is he starting position.

A) 100 m

(or)

$$\begin{array}{cccc} E_{40} & N_{50} & W_{40} & N_{50} \\ \text{add } 50 + 50 = 100 \text{ m} \end{array}$$



(Different directions subtract, same direction add)

Note:-

Like in above type of problems if only one person covers the distance, in same direction add them. Eg:- $E + E + E + \dots$
 $W + W + W + \dots$ $S + S + S + \dots$ $N + N + N + \dots$

In opposite direction subtract them. Eg:- $E - W$, $W - E$,

$S - N$, $N - S$

2. A woman moves towards north and covers a distance of 50m then turns east and covers 80m then turns south and covers 50m then turns west and covers 30m. How far is she from her starting position.

A) N_{50} E_{80} S_{50} W_{30} $50 - 50 = 0$

$\Rightarrow 80 - 30 = 50 \text{ m}$ (different direction)

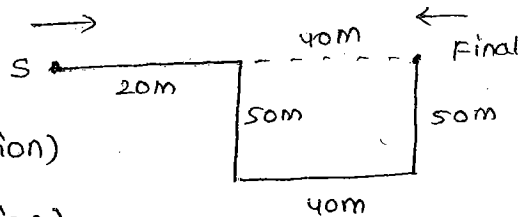
3. Raju moves towards east and covers a distance of 20m then turns south and covers a distance of 50m then turns east and covers a distance of 40m then turns north and covers a distance of 50m. How far and which direction is he from his starting position.

A) E_{20} S_{50} E_{40} N_{50} $\Rightarrow 20 + 40 = 60 \text{ East}$

$$\Rightarrow 20 + 40$$

$\Rightarrow$ 60m East (starting position)

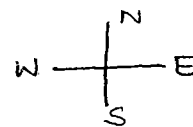
$\Rightarrow$ 60m West (Final position)



Note:-

1. If directions asked from starting position (or) initial (or) original position then your direction is obtain ~~it~~ ^{one} only.
2. If direction asked from final position (or) end (or) reached position, then your direction is opposite of obtain one.
3. A rangeela drive towards south and covers a distance of 20 km then turns east and covers 50 km then turn south and covers 30 km then turns west and covers 50 km they turn south covers 40 km. How far and in which direction is she from a reached position.

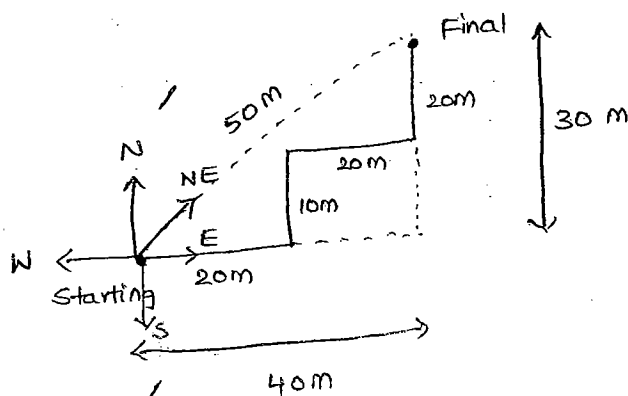
A) $S_{20} \quad E_{50} \quad S_{30} \quad W_{50} \quad S_{40}$



$$\Rightarrow 20 + 30 + 40 = 90 \text{ km North.}$$

4. Arun moves towards east and covers a distance of 20m then turns north and covers a distance of 10m then turns east and covers 20m then turns north and covers 20m. How far and in which direction is he from his initial position.

A)



$$\Rightarrow 50 \text{ m NE}$$

(or)

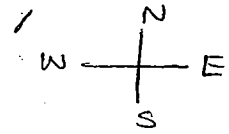
$$E_{20} \quad N_{10} \quad E_{20} \quad N_{20}$$

$$E_{40} \quad N_{30} \Rightarrow \sqrt{40^2 + 30^2} = 50$$

$$\Rightarrow 50 \text{ m NE}$$

5. Suri moves towards east and covers a distance of 30m then turns left and covers 20m, then turns left and covers 30m, then turns right and covers 20m. How far and in which direction is he from his original position.

A) $\begin{matrix} & L & & L & & R \\ E_{30} & & N_{20} & & W_{30} & & N_{20} \end{matrix}$



$\Rightarrow 20 + 20 = 40$ m North (starting position)

6. Kranti moves towards north and covers a distance of 40m then turns right and covers a distance of 50m then turns left and covers 20m, then turns left again and covers 50m. How far and in which direction is he from his reached position.

A) $\begin{matrix} & R & & L & & L \\ N_{40} & & E_{50} & & N_{20} & & W_{50} \end{matrix}$

$\Rightarrow 40 + 20 = 60$ m S (Reached position)

7. Dayana drive towards east and covers 30 km, then turns left and covers 50 km, then turns left and covers 30 km, then turns left and covers 50 km, then turns right and covers 40 km and died. How far and in which direction is she from a death position.

A) $\begin{matrix} & L & & L & & L & & R \\ E_{30} & & N_{50} & & 30 & & 50 & & 40 \\ E_{30} & & N_{50} & & W_{30} & & S_{50} & & W_{40} \end{matrix}$

$\Rightarrow 40$ km East (reached position)

Note:-

Like in above type of problems

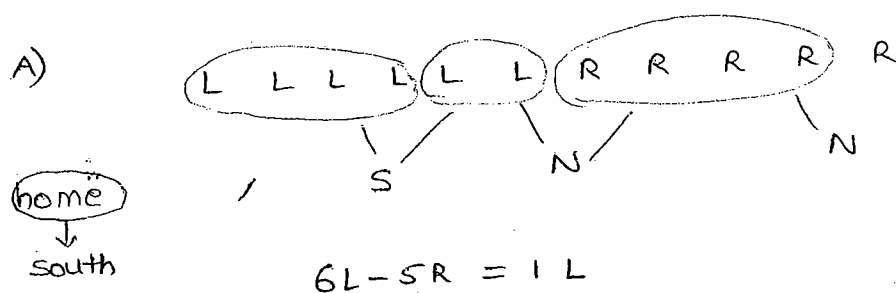
1. If starts from any one 'x' position, both are same positions
Left - Left (or) Right - Right the next direction is opposite of

2. If starts from any one x -direction, both are different terms Left - Right (or) Right - left, the next direction is same as x -direction.

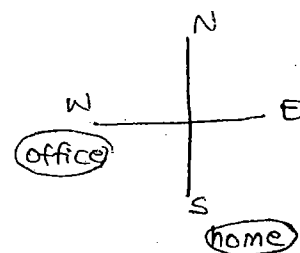
$$x' - \left\{ \begin{array}{c} L-R \\ \text{(or)} \\ R-L \end{array} \right\} \text{ same as } x\text{-direction.}$$

$$x - \left\{ \begin{array}{c} L-L \\ \text{or} \\ R-R \end{array} \right\} \text{ opposite of } x\text{-direction.}$$

8. Amar moves to office from his home, he reaches in office after 6 left turns and 5 right turns. If is home is in south then in which direction is his office.



Office in "West"



Note:-

$$x' - \left\{ \begin{array}{c} L-L-L-L \\ \text{(or)} \\ R-R-R-R \end{array} \right\} - \text{same as } x\text{-direction.}$$

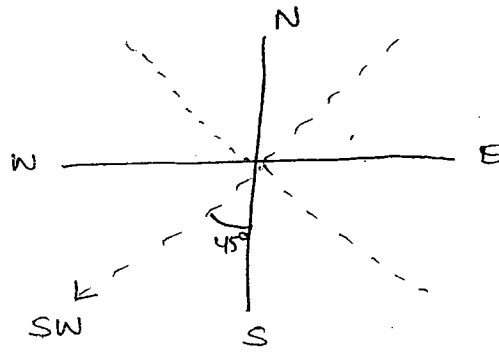
1. Right hand turn is clock wise direction.

2. Left hand turn is Anticlock wise direction.

9. Iam facing towards south then turns clockwise with an angle of 45° then turns anticlockwise with an angle of 90° they turn clockwise with an angle of 135° , they turn anti c.w with 90° , they turn clock wise with 45° . In which direction Iam facing now.

(7)

$$A \cdot C_{45^\circ} A_{90^\circ} C_{135^\circ} A_{90^\circ} C_{45^\circ}$$



$\Rightarrow$ SW

Add all clockwise

$$C_{275^\circ}$$

Add all Anticlockwise

$$A_{180^\circ}$$

$$\Rightarrow C_{275} - A_{180} = 45^\circ$$

$$\Rightarrow C_{45^\circ}$$

10. Gavini facing towards North east then turns clockwise with an angle of 20° they turns anti clockwise with an angle of 35° they turns clockwise with 30° , they turns anticlockwise with 55° then turns clockwise with 40° . In which direction he facing now.

A) Gavini facing NE

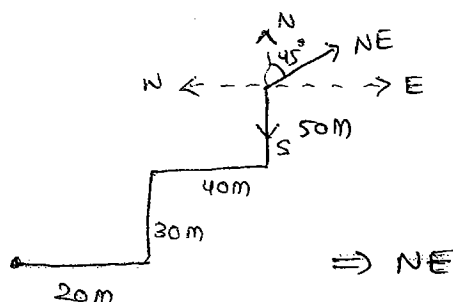
$$C_{20^\circ} A_{35^\circ} C_{30^\circ} A_{55^\circ} A C_{40^\circ}$$

$$\Rightarrow C_{90^\circ} A_{90^\circ}$$

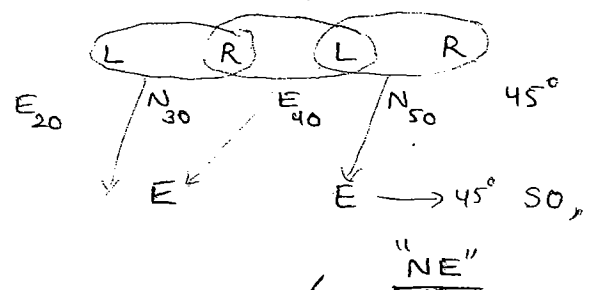
$$\Rightarrow 90 - 90 = 0^\circ \text{ (same direction)}$$

$\Rightarrow$ NE

11. Rajini moves towards east and covers 20m, they turns left 30° and covers 30m, they turns right and covers 40m they turns left and covers 50m, they turns right with an angle of 45° . In which direction he facing now.



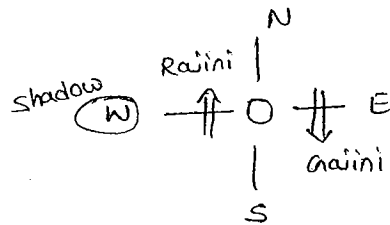
$\Rightarrow$ NE



Note:-

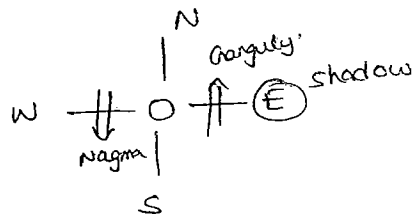
1. In morning hours after sunrise our shadow falls towards west direction.
2. In evening hours before sunset our shadow falls towards east direction.
12. In one morning hours after sun raise Rajini and Gajini facing to each other and talk, at one cross roads in hyd the shadow of Rajini falls exactly to his left handside. Which direction Gajini was facing now.

A. Gajini facing South



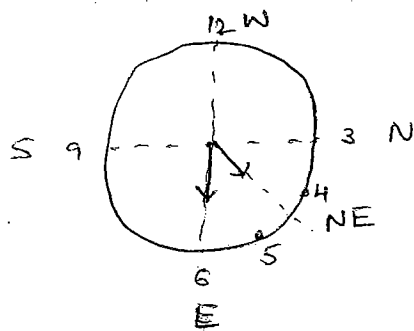
13. In one evening hours before sunsets Nagma and Garguly are facing to each and talk to each other at one cross roads at Kolkata. The shadow of Nagma falls exactly to right of Garguly. Then it which direction Nagma was facing now.

A) Nagma facing South.



14. A watch reads 4:30 hrs, if minutes hand points towards east then in which direction hours and points now.

A) "NE"



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15. If South East is called East, North west is called west, SW is called South and so on. Then what will be North called

A) "North west"

