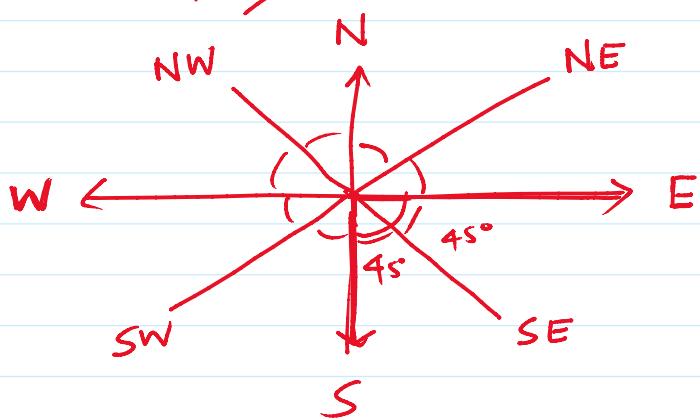


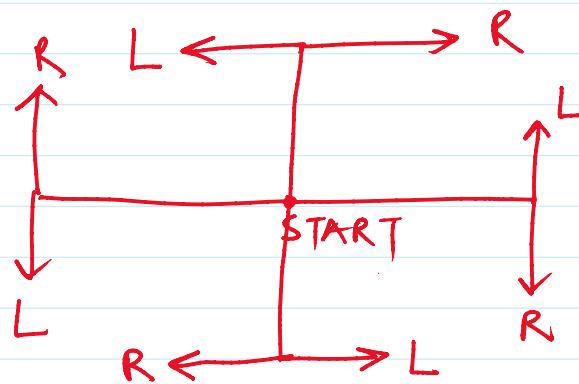
## Direction Test.



2 - North & South

2 - Secondary Direction

NEWS

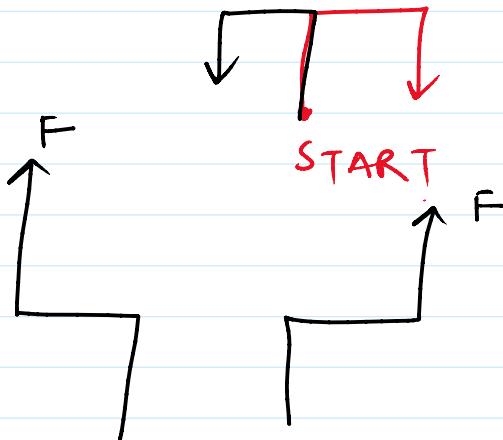


$R+R = \text{U Turn}$

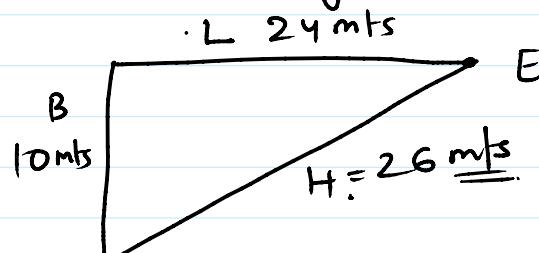
$L+L = \text{U Turn}$

$R+L = \text{Forward}$

$L+R = \text{Forward.}$

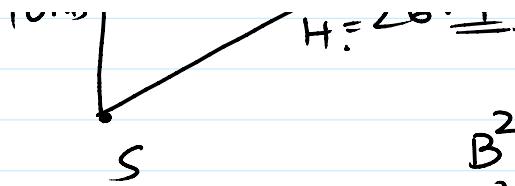


Pythagoras Theorem.



B.	P	H
3	4	5
6	8	10
5	12	13
a	b	c

5 12 13  
 9 12 15  
 10 24 26



$$\begin{aligned}
 B^2 + P^2 &= H^2 \\
 10^2 + 24^2 &= 100 + 576 \\
 &= 676 \\
 &= 26^2
 \end{aligned}$$

1. A man is facing towards west and turns through  $45^\circ$  clockwise, again  $180^\circ$  clockwise and then turns through  $270^\circ$  anti-clockwise. In which direction is he facing now?

- (a) West
- (b) North-west
- (c) South
- (d) South-west
- (e) None of these

2. I am facing east. I turn  $100^\circ$  in the clockwise direction and then  $145^\circ$  in the anti clockwise direction. Which direction am I facing now?

- (a) East
- (b) North-east
- (c) North
- (d) South-west
- (e) None of these

3. A river flows from west to east and on the way turns left and goes in a semi-circle round a hillock, and then turns left at right angle. In which direction is the river finally flowing?

- (a) West
- (b) East
- (c) North
- (d) South
- (e) None of these

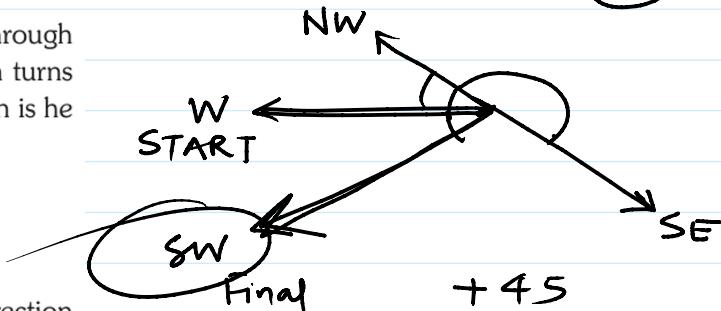
4. You go north, turn right, then right again and then go to the left. In which direction are you now?

- (a) North
- (b) South
- (c) East
- (d) West
- (e) None of these

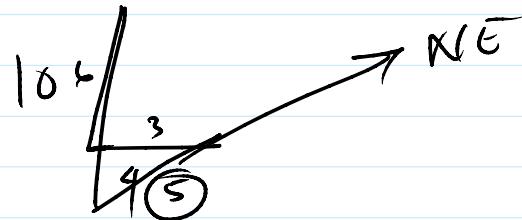
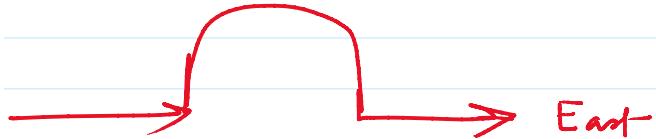
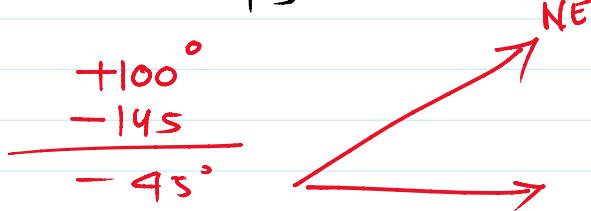
5. Kunal walks 10 kilometres towards North. From there, he walks 6 kilometres towards south. Then, he walks 3 kilometres towards east. How far and in which direction is he with reference to his starting point?

- (a) 5 kilometres West
- (b) 5 kilometres North-east
- (c) 7 kilometres East
- (d) 7 kilometres West
- (e) None of these

6. Rohan walks a distance of 3 km towards North, then



$$\begin{array}{r}
 +45 \\
 +180 \\
 -270 \\
 \hline
 -45^\circ
 \end{array}$$



6. Rohan walks a distance of 3 km towards North, then turns to his left and walks for 2 km. He again turns left and walks for 3 km. At this point he turns to his left and walks for 3 km. How many kilometres is he from the starting point?

(a) 1km (b) 2km  
(c) 3km (d) 5 km  
(e) None of these

7. Namita walks 14 metres towards west, then turns to her right and walks 14 metres and then turns to her left and walks 10 metres. Again turning to her left she walks 14 metres. What is the shortest distance (in metres) between her starting point and the present position?

(a) 10      (b) 24  
(c) 28      (d) 38

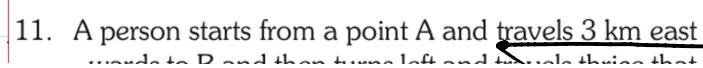
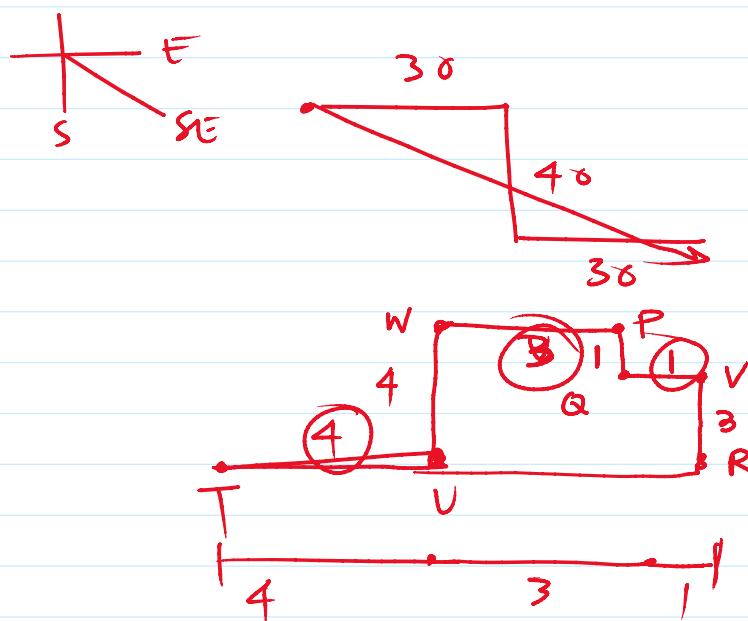
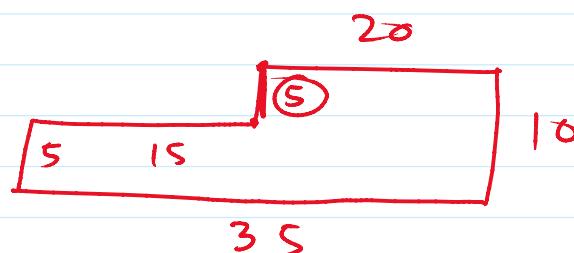
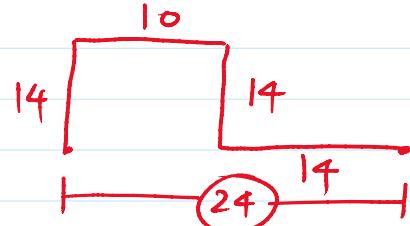
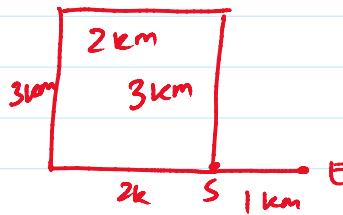
8. A man leaves for his office from his house. He walks towards East. After moving a distance of 20 m, he turns South and walks 10 m. Then he walks 35m towards the West and further 5m towards the North. He then turns towards East and walks 15 m. What is the straight distance (in metres) between his initial and final position?

(a) 0  
(b) 5  
(c) Cannot be determined  
(d) None of these

9. Amit walked 30 metres towards East, took a right turn and walked 40 metres. Then he took a left turn and walked 30 metres. In which direction is he now from the starting point?

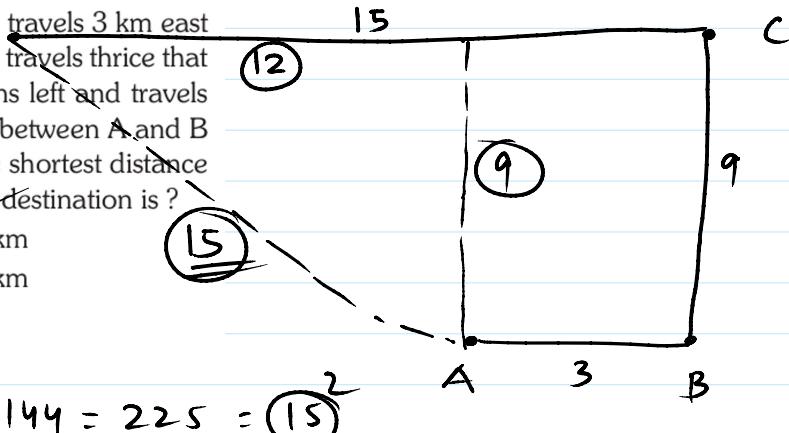
(a) North-east      (b) East  
~~(c) South-east~~      (d) South  
(e) None of these

10. Maya starts at point T, Walks straight to point U which is 4 ft away. She turns left at  $90^\circ$  and walks to W which is 4 ft away, turns  $90^\circ$  right and goes 3 ft to P, turns  $90^\circ$  right and walks 1 ft to Q, turns left at  $90^\circ$  and goes to V, which is 1 ft away and once again turns  $90^\circ$  right and goes to R, 3 ft away. What is the distance between T and R ?

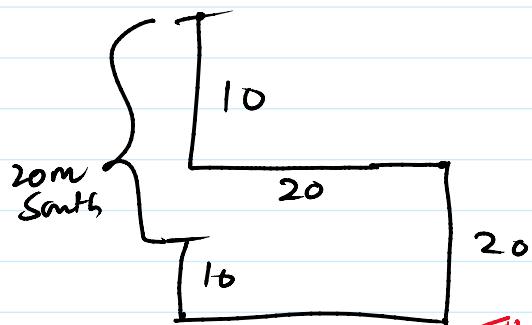


(e) None of these

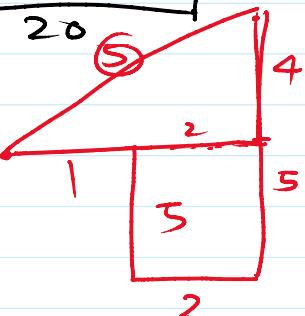
11. A person starts from a point A and travels 3 km eastwards to B and then turns left and travels thrice that distance to reach C. He again turns left and travels five times the distance he covered between A and B and reaches his destination D. The shortest distance between the starting point and the destination is ?
- (a) 12 km      (b) 15 km  
(c) 16 km      (d) 18 km  
(e) None of these



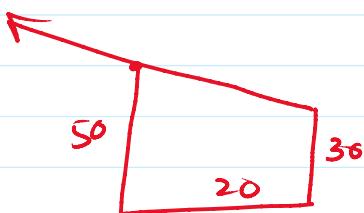
12. Sanjeev walks 10 metres towards the south. Turning to the left, he walks 20 metres and then moves to his right. And moving a distance of 20 metres, he turns to the right and walks 20 metres. Finally, he turns to the right and moves a distance of 10 metres. How far and in which direction is he from the starting point?
- (a) 10 metres North      (b) 20 metres South  
(c) 20 metres North      (d) 10 metres South  
(e) None of these



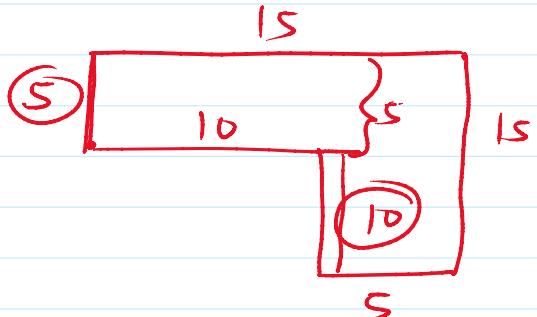
13. A man walks 1 km towards East and then he turns to his south and walks 5 km. Again he turns to East and walks 2 km, after this he turns to North and walks 9 km. Now, how far is he from his starting point?
- (a) 3 km      (b) 4 km  
(c) 5 km      (d) 7 km  
(e) None of these



14. 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  
(e) None of these



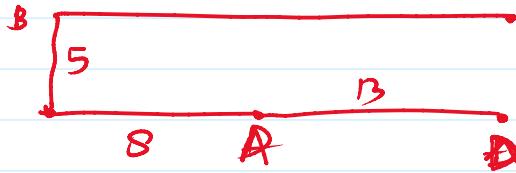
15. A walks 10 metres in front and 10 metres to the right. Then every time turning to his left, he walks 5, 15 and 15 metres respectively. How far is he now from his starting point?
- (a) 5 metres      (b) 10 metres  
(c) 20 metres      (d) 23 metres  
(e) None of these



1. Town D is 13 Km. towards the East of town A. A bus

1. Town D is 13 Km. towards the East of town A. A bus starts from town A travels 8 Km. towards West and takes a right turn. After taking the right turn, it travels 5 Km. and reaches town B. From town B the bus takes a right turn again, travels 21 Km. and stops. How far and towards which direction must the travel to reach town D? [ Syndicate bank -PO]

- (a) 13 Km. towards South
- (b) 5 Km. towards West
- (c) 21 Km. towards South
- ~~(d) 5 Km. towards South~~
- (e) None of these



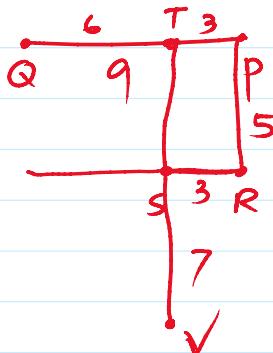
3. Which of the following points are in a straight line?

- (a) P, R, V
- (b) S, T, Q
- ~~(c) P, T, V~~
- (d) V, T, R
- ~~(e) S, V, T~~

Point P is 9m towards the East of Point Q. point R is 5m towards the South of point P. point S is 3m towards the West of point R. point T is 5m towards the north of point S. Point V is 7m towards the South of Point S.

[Corporation bank PO]

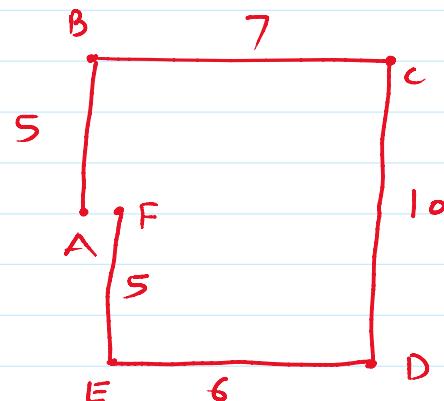
2. If a person walks in a straight line for 8m towards west from point R, which of the following points would he cross first?
- (a) V
  - (b) Q
  - ~~(c) T~~
  - ~~(d) S~~
  - (e) Cannot be determined



Sam walked 5m towards north from point A and reached point B. He took a right turn from point B and walked 7m and reached point C. He took a right turn from point and walked 10m to reach point D. He took another right turn from point D and walked 6m to reach point E. Sam took a right turn from point E and walked 5m to reach point F.

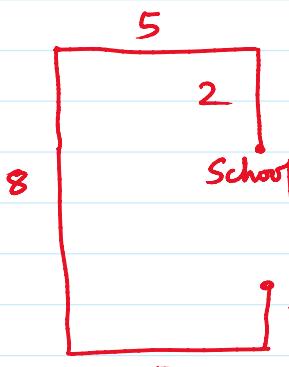
[Corporation bank]

4. How far and in which direction is point F from point A?
- ~~(a) 1m towards east~~
  - ~~(b) 1m towards south~~
  - ~~(c) 1m towards north~~
  - ~~(d) 1m towards west~~
  - ~~(e) Point A coincides with point F~~
5. What was the total distance that Sam walked ?
- (a) 35m
  - (b) 38m
  - ~~(c) 32m~~
  - ~~(d) 31m~~
  - ~~(e) None of these~~



6. A school bus driver starts from the school, drives 2 km. towards North, takes a left turn and drives for 5 km. he then takes a left turn and drives for 8 km. before taking a left turn again and driving for further 5 km. The driver finally takes a left turn and drives 1 km. before stopping. How far and towards which direction should the driver drive to reach the school again? [IBPS – PO/MT]

- (a) 3 km. towards North
- (b) 7 km. towards east
- ~~(c) 6 km. towards south~~
- ~~(d) 6 km. towards west~~

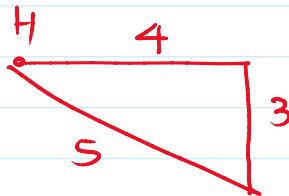


- (a) 3 km. towards North (b) 7 km. towards east  
 (c) 6 km. towards south (d) 6 km. towards west  
 (e) 5 km. towards north



7. Rajesh starting from his house, goes 4 km. in the East, then he turns to his right and goes 3 km. What is his final distance from his house?

- (a) 4 km. (b) 5 km.  
 (c) 5.5 km. (d) 4.5 km.  
 (e) None of these



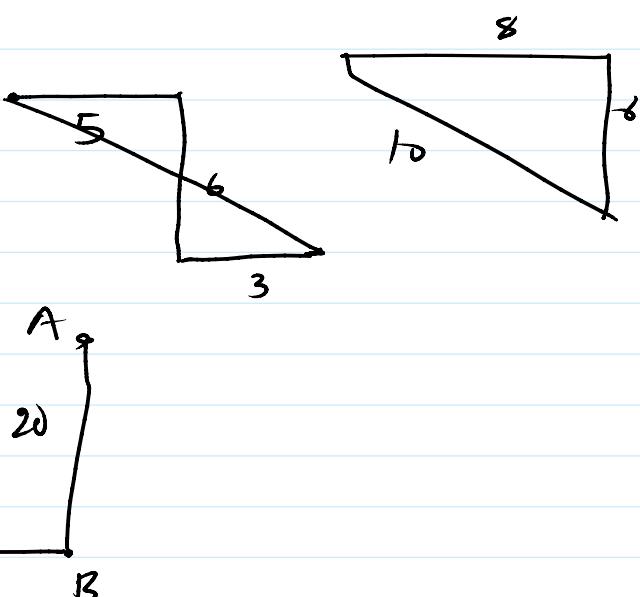
8. Ricky after travelling for 5 km. took right turn and travelled 6 km. before taking left turn and then travelled for 3 km. find his final distance from home.

- (a) 10 km (b) 12 km  
 (c) 9 km (d) 11 km  
 (e) None of these

9. In a game "Pass the ball" position of some players are as follows:

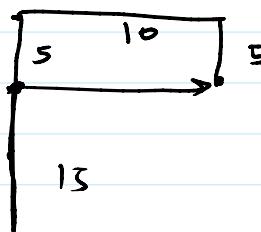
'A' is 20 meters to the north of 'B' who is 18 meters to the east of 'C' who is 12 meters to the west of 'A'. If ball was initially with 'B' and is passed to 'C' in which direction is it from his starting point?

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



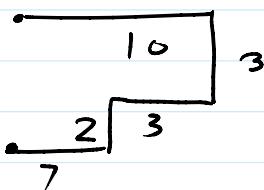
10. Rimpy on the way to her school starts walking from her home towards south. After walking 15 meters she turns towards north. After walking 20 meters, she turns towards east and walks 10 meters. She then turns towards south and walks 5 meters. How far is she from his original position and in which direction?

- (a) 10 meters, East (b) 10 meters, South - East  
 (c) 10 meters, West (d) 10 meters, North - East  
 (e) None of these



11. An ant moves 10 cm towards east and turns to the right hand moves 3 cm. Then it moves to its right and moved 3 cm. It then turns to his left and moves 2 cm. Finally it turns to his right and travel's 7 cm. how far and in which direction it is now from the starting point?

- (a) 10 cm, East (b) 9 cm, North  
 (c) 8 cm, West (d) 5 cm, West  
 (e) None of these

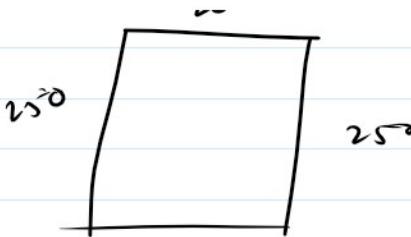


12. Rimpy, on her morning walk, starting from home she walks to the North for 250 m, then she turns to her right and travels 20 m and then she again turns to the right and drives straight another 250 m. How much distance has she now to cover to go back to



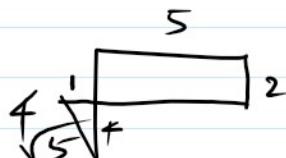
She walks to the North for 250 m, then she turns to her right and travels 20 m and then she again turns to the right and drives straight another 250 m. How much distance has she now to cover to go back to her home?

- (a) 25 m
- (b) 20 m
- (c) 4 m
- (d) 40 m
- (e) 30 m



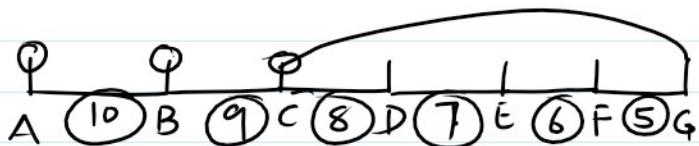
13. Amar on his new car 1<sup>st</sup> drives towards North 4 Kms and turns right and drives 5 Kms. Then he turns towards South and drives 2 Kms, then he takes a right turn and drives 6 Kms. What is the distance of Amar from his starting point?

- (a) 16 Kms
- (b) 12 Kms
- (c) 2 Kms
- (d) 4 Kms
- (e)  $\sqrt{5}$  kms



**Directions (Qs. 5-7):** Seven poles A, B, C, D, E, F and G are put in such a way that the distance between the next two decreases by 1 metre. The distance between the first two poles, A and B, is 10 metres. Now answer the following questions.

5. If the authorities decide to remove one pole and place the remaining on equal distances among the poles, then each set of two poles would be ..... metres apart.
- (a) 8
  - (b) 7
  - (c) 9
  - (d) 5
  - (e) None of these
6. If a monkey hops from pole G to pole C, then how much distance did it cover ?
- (a) 26 km
  - (b) 19 km
  - (c) 22 km
  - (d) 25 km
  - (e) None of these
7. What is the distance between the first pole A and the last pole G ?
- (a) 40 m
  - (b) 49 m
  - (c) 45 m
  - (d) None of these
  - (e) cannot be determined



#### Directions (Q. 1-4):

A country has the following types of traffic signals.

3 red lights = stop;

2 red lights = turn left;

3 green lights = go at 100 kmph speed;

1 red light = turn right;

1 green light = go at 20 kmph speed

2 green lights = go at 40 kmph speed

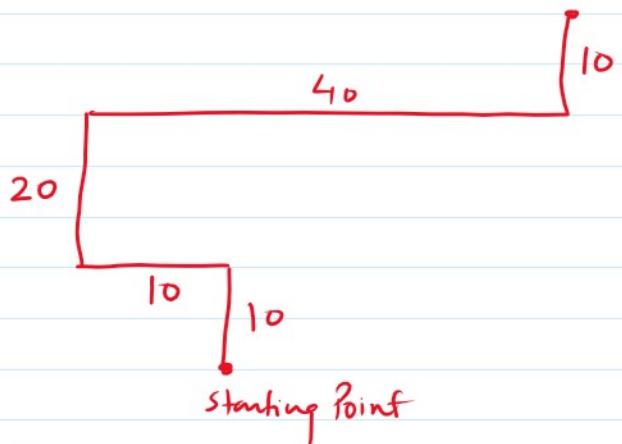
A motorist starts at a point on a road and follows all traffic signals literally. His car is heading towards the north. He encounters the following signals (the time mentioned in each case below is applicable after crossing the previous signal).

Starting Point – 1 green light;

After half an hour, 1<sup>st</sup> signal – 2 red & 2 green lights;

After 15 minutes, 2<sup>nd</sup> signal – 1 red light;

After half an hour, 3<sup>rd</sup> signal – 1 red & 3 green lights.



$$\frac{10 \times 24}{40} = 6$$

After half an hour, 1<sup>st</sup> signal – 2 red & 2 green lights;

After 15 minutes, 2<sup>nd</sup> signal – 1 red light;

After half an hour, 3<sup>rd</sup> signal – 1 red & 3 green lights;

After 24 minutes, 4<sup>th</sup> signal – 2 red & 2 green lights;

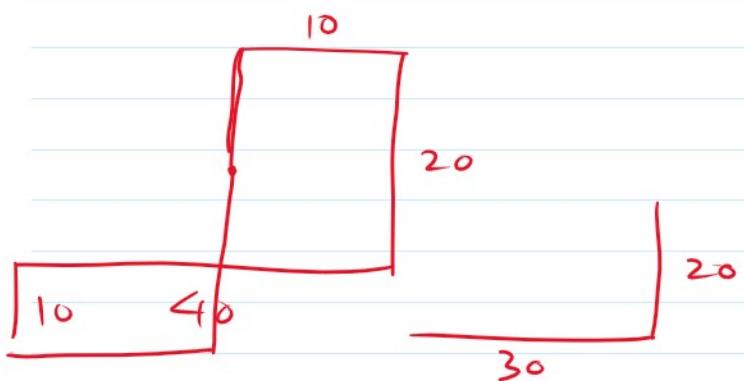
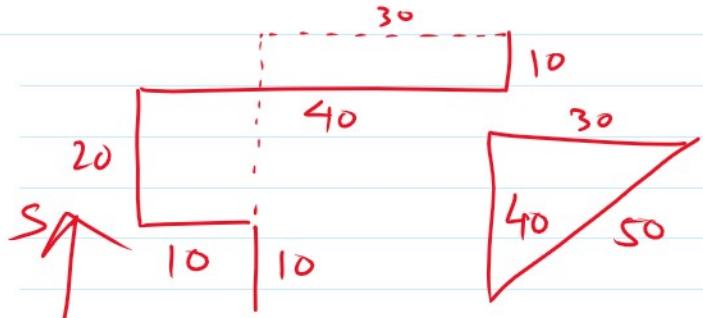
After 15 minutes, 5<sup>th</sup> signal – 3 red lights

- The total distance traveled by the motorist from the starting point till the last signal is:

90 km

- (a) 90 km.      (b) 100 km.
  - (c) 120 km.      (d) None of these.
- What is the position radial distance of the motorist when he reaches the last signal:
    - (a) 45 km. directly north of Starting Point.
    - (b) 30 km. directly to the east of the Starting Point.
    - (c) 50 km. away to the northeast of the Starting Point.
    - (d) 45 km. away to the northwest of the Starting Point.
  - After the starting point if the 1<sup>st</sup> signal were 1 red and 2 green lights, what would be the final position of the motorist:
    - (a) 30 km. to the west and 20 km. to the south.
    - (b) 30 km. to the west and 40 km. to the north.
    - (c) 50 km. to the east and 40 km. to the north.
    - (d) Directly 30 km. to the east.
  - If at the starting point, the car was heading towards south, what would be the final position motorist:
    - (a) 30 km. to the east and 40 km. to the south.
    - (b) 50 km. to the east and 40 km. to the south.
    - (c) 30 km. to the west and 40 km. to the south.
    - (d) 50 km. to the west and 20 km. to the north.

$$\frac{10 \times 2 + 2}{40} = 15$$



## CLOCKS



### Hour hand

$$12 \text{ hr} \rightarrow 360^\circ$$

$$9 \text{ hr} \rightarrow 270^\circ$$

$$6 \text{ hr} \rightarrow 180^\circ$$

$$3 \text{ hr} \rightarrow 90^\circ$$

$$1 \text{ hr} \rightarrow 30^\circ$$

$$60 \text{ min} \rightarrow 30^\circ$$

$$2 \text{ min} \rightarrow 1^\circ$$

$$1 \text{ min} \rightarrow \frac{1}{2}^\circ = 0.5^\circ$$

### Minute hand

$$60 \text{ mins} \rightarrow 360^\circ$$

$$1 \text{ min} \rightarrow 6^\circ$$

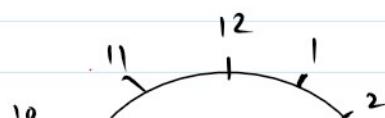
$$2 \text{ min} \rightarrow 12^\circ$$

$$15 \text{ min} \rightarrow 90^\circ$$

$$30 \text{ min} \rightarrow 180^\circ$$

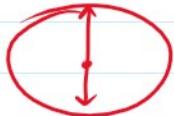
$$45 \text{ min} \rightarrow 270^\circ$$

\*





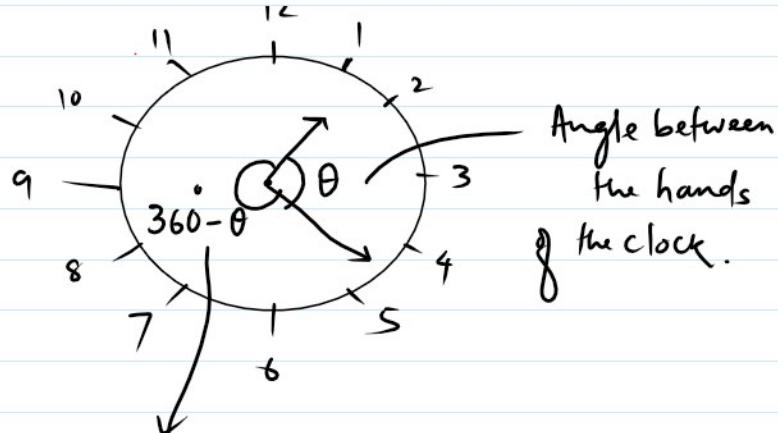
coincide. ( $0^\circ$ )



Opposite to each other ( $180^\circ$ )



Perpendicular to each other. ( $90^\circ$ )



Reflex Angle between the hands of the clock.

### Type I

**Finding angle between minute hand & hour hand:** -

Find the angle between minute hand & hour hand when the time is: -

$$1. 7:30 \quad 45^\circ$$

$$5^\circ$$

$$2. 8:20 \quad 130^\circ$$

$$45^\circ$$

$$3. 6:15 \quad 97.5^\circ$$

$$4. 2:10 \quad 5^\circ$$

$$245^\circ$$

$$5. 4:30 \quad 45^\circ$$

$$6. 10:10 \quad 7 \times 30^\circ + 30 \times \frac{1}{2}^\circ$$

$$210^\circ + 15^\circ$$

$$30 \times 6^\circ$$

$$180^\circ$$

$$180^\circ$$

$$180^\circ$$

$$1. R.A \rightarrow 315^\circ$$

$$2. R.A \rightarrow 230^\circ$$

3.

7 hr

30 min

Hr

Min

30

7 hr + 30 min

$7 \times 30^\circ + 30 \times \frac{1}{2}^\circ$

$210^\circ + 15^\circ$

$225^\circ$

$45^\circ$

1. At what time between 2PM and 3PM the angle between minute hand and hour hand is  $100^\circ$ .

$$(a) 2:14 \frac{6}{11}$$

$$(b) 2:12 \frac{6}{11}$$

$$(c) 2:18 \frac{6}{11}$$

$$(d) \text{None of these}$$

$2 \text{ hr } \times \text{min}$

$100^\circ$

$$\frac{A}{B} - \frac{C}{D} = \frac{AD - BC}{BD}$$

$$\underline{\underline{2 \text{ PM : } x \text{ Min}}} = 100^\circ$$

$$\underline{\underline{2 \times 30 + x}} \quad (6x)$$

$\overline{AB} = D$

$$6x - \left(60 + \frac{x}{2}\right) = 100^\circ$$

$$6x - 60 - \frac{x}{2} = 100^\circ$$

$$\frac{6x}{1} - \frac{x}{2} = 160^\circ$$

$$\frac{12x - x}{2} = 160^\circ$$

$$\frac{11x}{2} = 160^\circ$$

$$x = \frac{320^\circ}{11} \quad \text{or} \quad \frac{320}{22} \quad \frac{29}{99}$$

$$\underline{\underline{2 : 29 \frac{1}{11} \text{ Min}}}$$

$2 : 18$

$$2 \times 30 + \frac{18}{2}$$

$$60 + 9$$

$$18 \times 6$$

$$108$$

$$108 - 69 = 39^\circ$$

$$\begin{array}{l} 2 \text{PM} - 60^\circ \\ 6 \text{PM} - 180^\circ \end{array}$$

$$\frac{2 - 120^\circ}{60^\circ} \times 100$$

200%

$2 \text{ hr } 45 \text{ min}$

$$45 \times 6$$

$$2 \times 30 + \frac{45}{2}$$

$$270$$

$$60 + 22.5$$

$$270$$

$$82.5$$

$$270$$

$$\begin{array}{r} 270^\circ \\ 82.5 \\ \hline 187.5 \end{array}$$

6. At what time between 3PM to 4PM minute hand and hour hand will coincide?

- (a)  $3:16 \frac{4}{11}$       (b)  $3: 15 \frac{4}{11}$   
 (c)  $3:17 \frac{4}{11}$       (d) None of these

7. At what time between 3PM to 4PM minute hand and hour hand will be opposite to each other?

$$15 \times \frac{12}{11} = \frac{180}{11} = 16 \frac{4}{11}$$

$$45 \times 12 = 540 \quad 49 \frac{1}{11}$$

7. At what time between 3PM to 4PM minute hand and hour hand will be opposite to each other?

(a)  $3:47\frac{1}{11}$       (b)  $3:48\frac{1}{11}$   
~~(c)  $3:49\frac{1}{11}$~~       (d) None of these

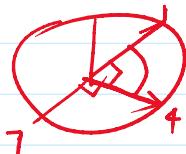
8. At what time between 4PM to 5PM minute hand and hour hand will be at right angle to each other?

(a)  $4:7\frac{5}{11}$       (b)  $4:4\frac{5}{11}$   
~~(c)  $4:9\frac{5}{11}$~~       ~~(d)~~ None of these

9. At what time between 9PM to 10PM minute hand and hour hand will coincide?

~~(a)  $9:49\frac{1}{11}$~~       (b)  $9:48\frac{1}{11}$   
~~(c)  $9:44\frac{1}{11}$~~       (d) None of these

$$\begin{array}{r} 45 \\ \times 12 \\ \hline 90 \\ 45 \\ \hline 540 \end{array}$$



$$\frac{5 \times 12}{11} = \frac{60}{11} = 5 \frac{5}{11}$$

$$\frac{35 \times 12}{11} = \frac{420}{11} = \textcircled{38 \frac{2}{11}}$$



$$\frac{45 \times 12}{71} = 47 \frac{1}{71}$$

10. At what time between 9PM to 10PM minute hand and hour hand will be opposite to each other?

(a)  $9:15 \frac{4}{11}$       (b)  $9:16 \frac{4}{11}$   
(c)  $9:12 \frac{4}{11}$       (d) None of these

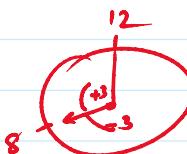
$$\frac{15 \times 12}{11} = \frac{180}{11} = 16\frac{4}{11}$$

5. At what time between 9 and 10 o'clock will the hands of a clock be in the same straight line but not together?

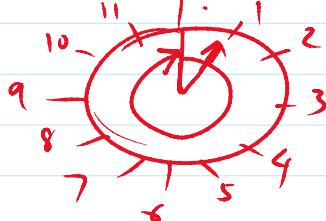
(a)  $9:16\frac{4}{11}$       (b)  $9:15\frac{4}{11}$   
(c)  $9:17\frac{4}{11}$       (d) None of these

6. At what time between 8 and 9 o'clock will the hands of a clock be at right angle?

(a)  $8:16\frac{3}{11}$       (b)  $8:27\frac{3}{11}$   
(c)  $8:17\frac{3}{11}$       (d) None of these



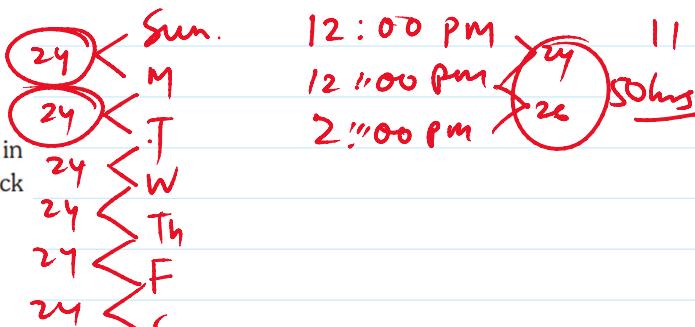
$$\cancel{\frac{5}{11} \times 12} = \frac{25 \times 12}{11} = \frac{300}{11} = 27\frac{3}{11}$$






True clock

Faulty close.



- (a) 9 p.m  
(c) 11 p.m

- (b) 10 p.m  
(d) 12 p.m

27  $\begin{cases} 17 \\ F \end{cases}$   
24  $\begin{cases} S \\ 26 \end{cases}$   
Sun

2:00 P.M.

2:04:48 P.M.

170 hrs  $\rightarrow$  408 seconds fast.  
~~?  $\rightarrow$  120 seconds fast.~~

$$5:30 \quad \cancel{\frac{120 \times 170}{408}}^{10}$$

50 hrs

TT  
10 AM  
...

F T  
10 AM  
3 AM Friday

24 — 16 min lose.  
24 hr — 960 sec.