



Grade 8



MATHEMATICS

Grade – 8

Subject - **Mathematics**

Competency -

13. Uses scale diagrams in practical situations by exploring various methods.

Competency Level -

13.1 Indicates the location of a place using a direction.

Unit - 24. Location of a place



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13.1 Indicates the location of a place using a direction.

Unit - 24. Location of a place



24. Location of a place

When you study this lesson you will be able to,

» Express the location of a place from a certain fixed point based on the North and South directions.

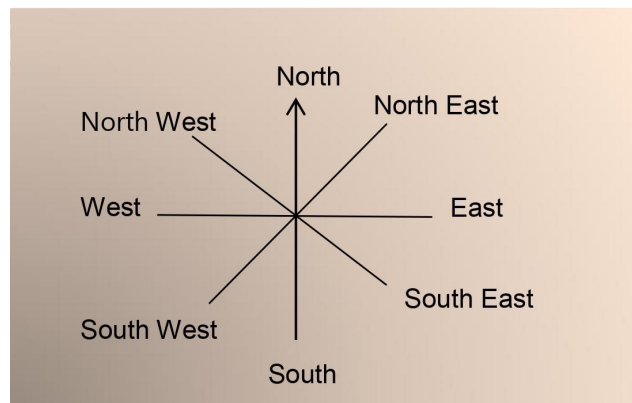
» Draw the location of a place from a certain fixed point using direction and distance.

24.1 Introduction

We can denote a position of a place from another fixed place by using the straight distance between the two places and the angle between those two places.

First, let us revise what we learnt about this concept in the previous Grades. We have learnt about four **main directions** as North, South, East and West.

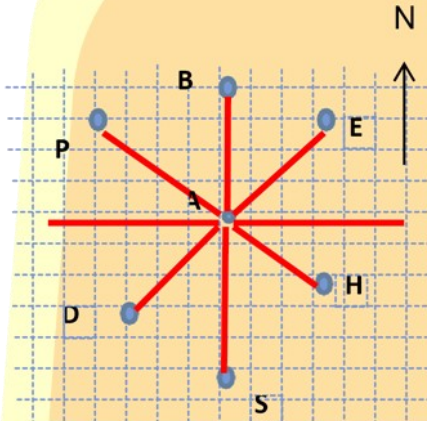
There are four other **sub directions** as South East, South West, North East and North West. The following diagram show the directions and sub directions.



Now let us consider how to express the location of a place from another place by using the directions mentioned above.

Example 01

Let's write the directions of the places B, E, H, S, D, P as seen from the place A.

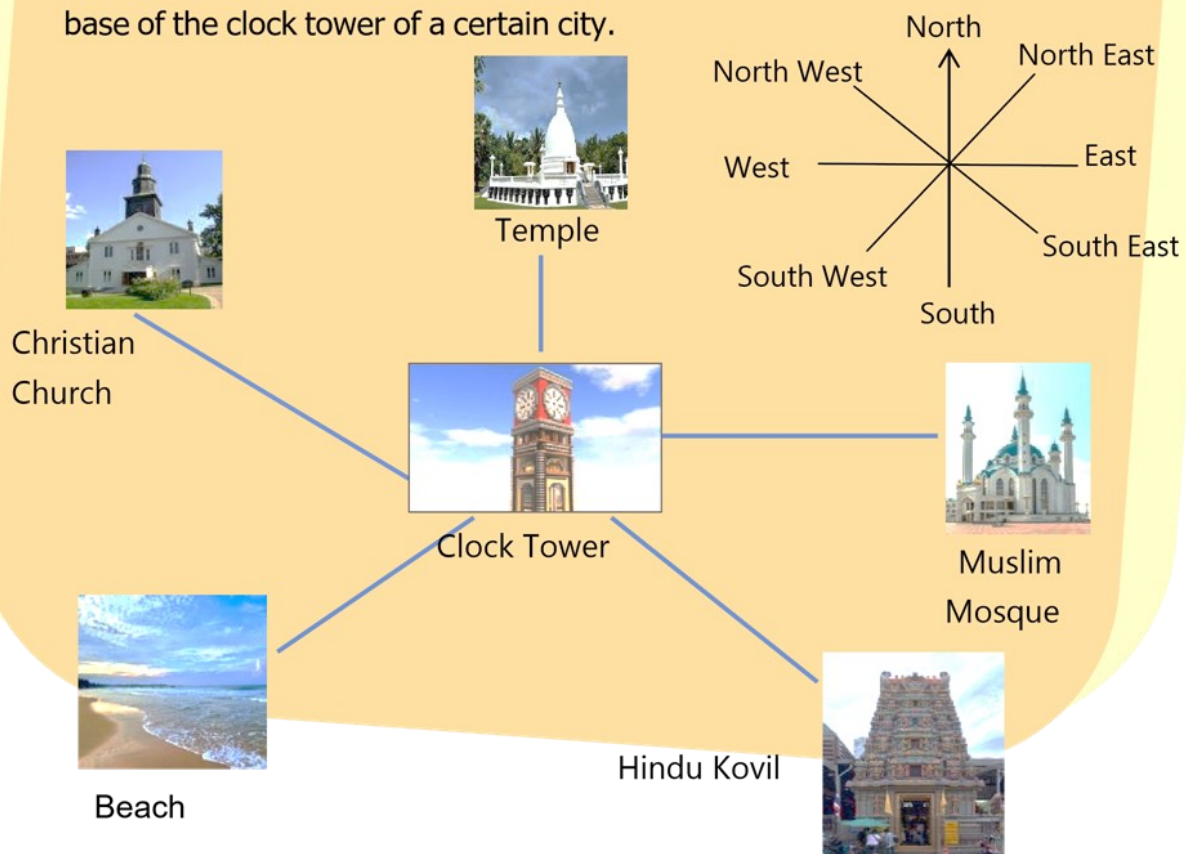


- i. B is situated in the **North** direction of A
- ii. E is situated in the **North East** direction of A
- iii. H is situated in the **South East** direction of A
- iv. S is situated in the **South** direction of A
- v. D is situated in the **South West** direction of A
- vi. P is situated in the **North West** direction of A



Activity 01

- The following diagram shows some attractive places for foreigners from the base of the clock tower of a certain city.





(i) Observe the above diagram carefully and complete the table given below.

Place of Observation	Direction of the place from the clock tower

(ii) Answer for the following questions on the above diagram.

The temple is located in thedirection of the clock tower.

The clock tower is located in the direction of the beach.

Hindu Kovil is situated in thedirection of the Christian church.

The clock tower is situated in the direction of the Muslim mosque.

24.2 Finding the direction of a place with regarding the main directions from a certain point.

In this section, we consider about the location of places which are not situated in main directions or in sub directions.

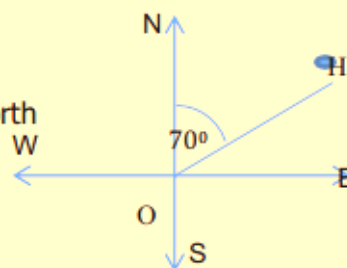
Let us pay attention for the following examples.

Example 02

In the diagram

The direction of H as seen from O is 70° East of North

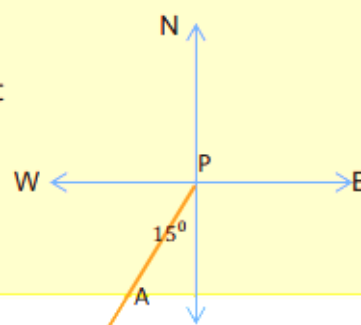
N 70° E



Example 03

A is situated from P 15° West from of South. We write it as,

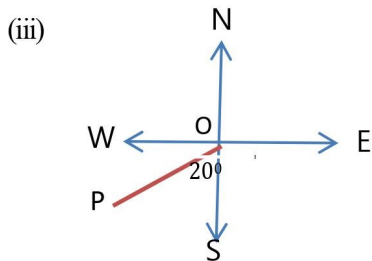
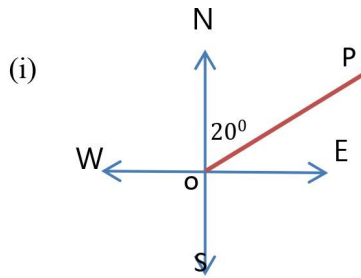
S 15° W



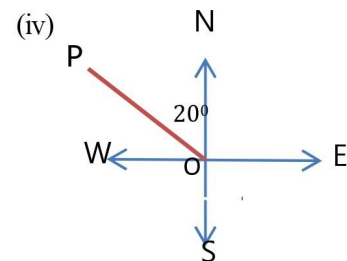
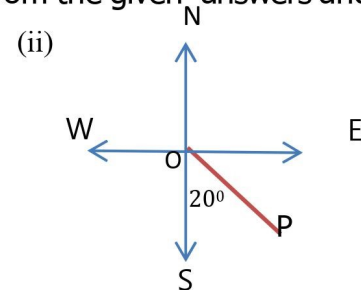


Exercise 01

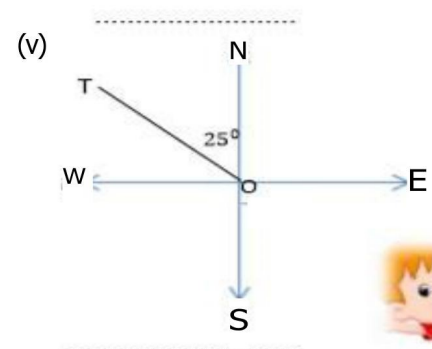
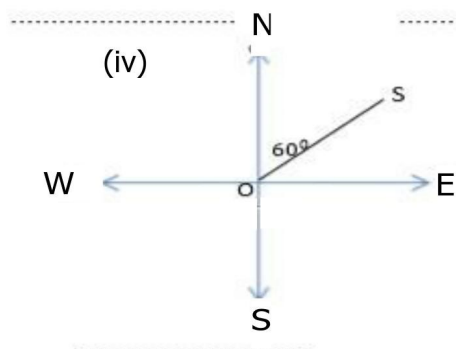
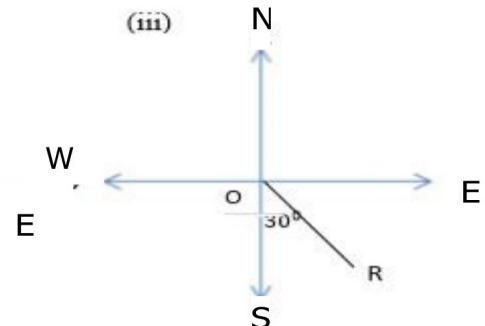
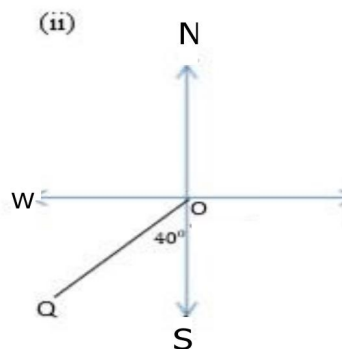
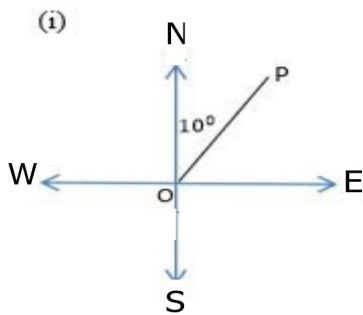
01. Select the correct direction of the location of P from O from the given answers and join them.



$S\ 20^\circ\ W$
$N\ 20^\circ\ W$
$S\ 20^\circ\ E$
$E\ 20^\circ\ N$
$N\ 20^\circ\ E$



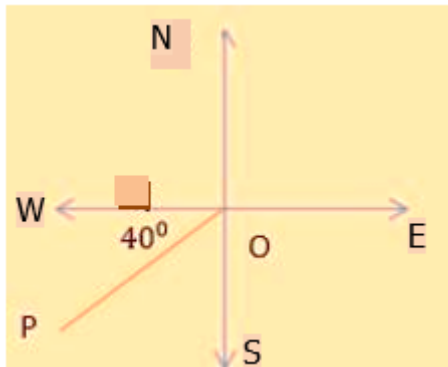
02. Write the location of the points P, Q, R, S and T from the point O on the dotted line provided.





Let us explore more on how to express the location of a point by studying the following examples.

Example 04



The diagram shows the location of a place which is situated in 40° from West to the direction of South.

Before we express the location of the place, we must calculate the angle of that place from the South direction.

$$\begin{aligned} \text{Angle from the South direction} &= 90^\circ - 40^\circ \\ &= 50^\circ \end{aligned}$$

Therefore, the direction of P from O can be written as **S 50° W**

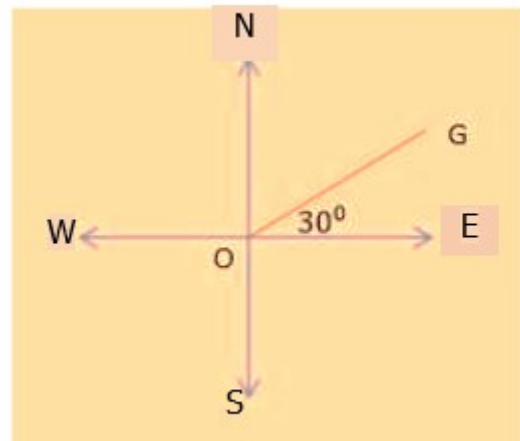
Example 05

The diagram shows a location of a place which is situated 30° from East to the direction of North.

First, we must find the relevant angle of that place from the direction of North.

$$\begin{aligned} \text{Angle from the direction of North} &= 90^\circ - 30^\circ \\ &= 60^\circ \end{aligned}$$

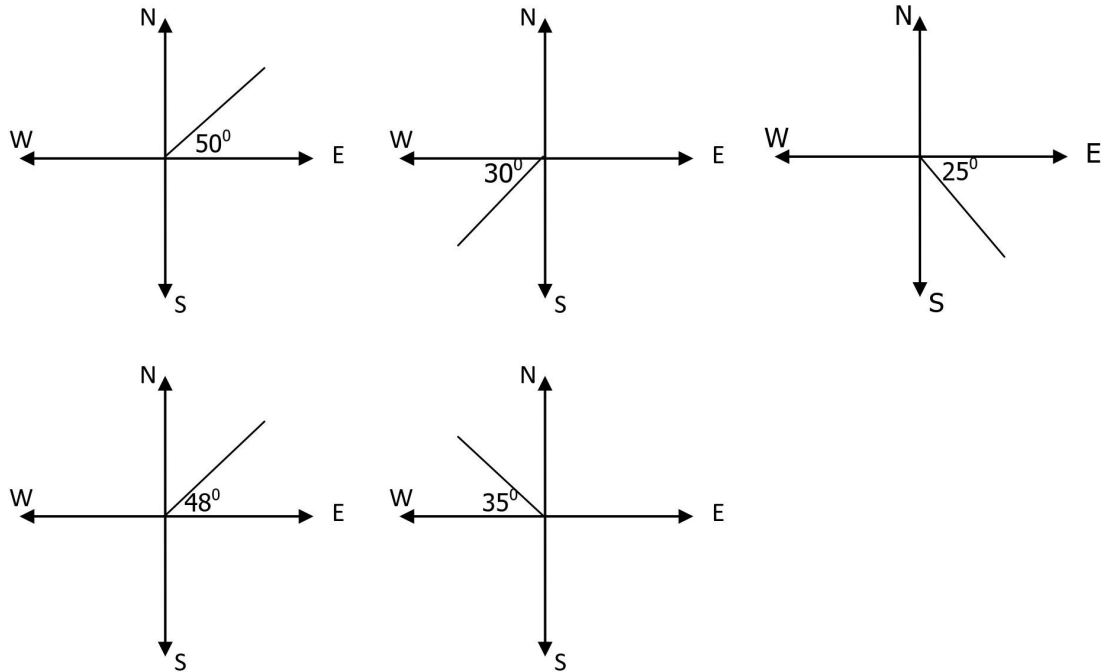
The direction of G from O is **N 60° E**





Exercise 02

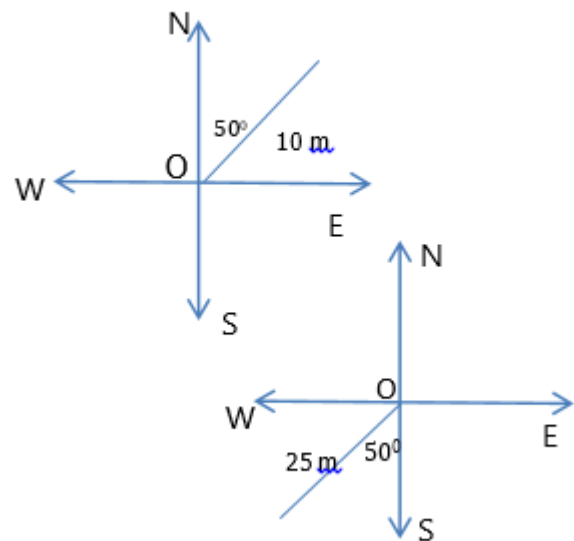
Express the direction of the following places in the correct format.



24.4 Drawing rough sketches of the places when the location is given.

Example 06

Draw the rough sketch of the location $N 50^\circ E$ which is located 10 m away from O. Draw the rough sketch of the location $S 50^\circ W$ and 25 m away.



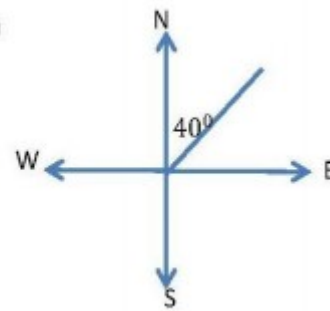
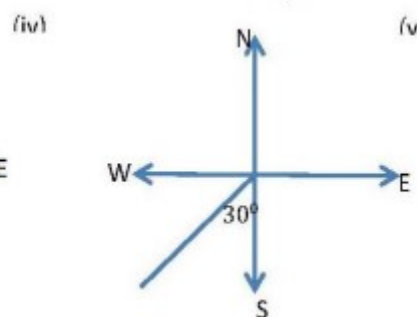
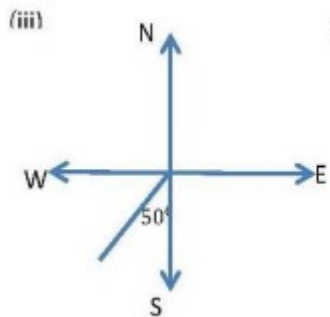
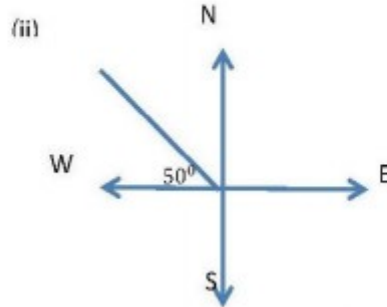
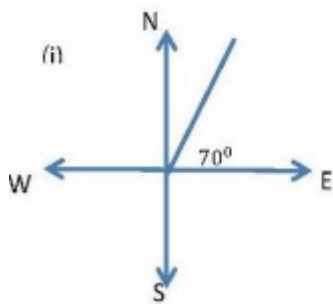


Exercise 03

01. Draw rough sketches to represent the following locations.

- I. N 20° E and 10m away from O
- II. N 50° W and 20m away from O
- III. S 50° E and 35m away from O
- IV. S 70° E and 15 m away from O
- V. N 35° W and 30m away from O
- VI. S 40° W and 40m away from O
- VII. S 80° E and 10m away from O
- VIII. N 45° W and 35m away from O
- IX. N 65° W and 10m away from O
- X. N 20° E and 15m away from O

02. Match the diagram with the given locations.



- N 20° E
- S 50° W
- S 60° W
- N 40° E
- N 40° W



24.5 Drawing more rough sketches of given locations

Example 07

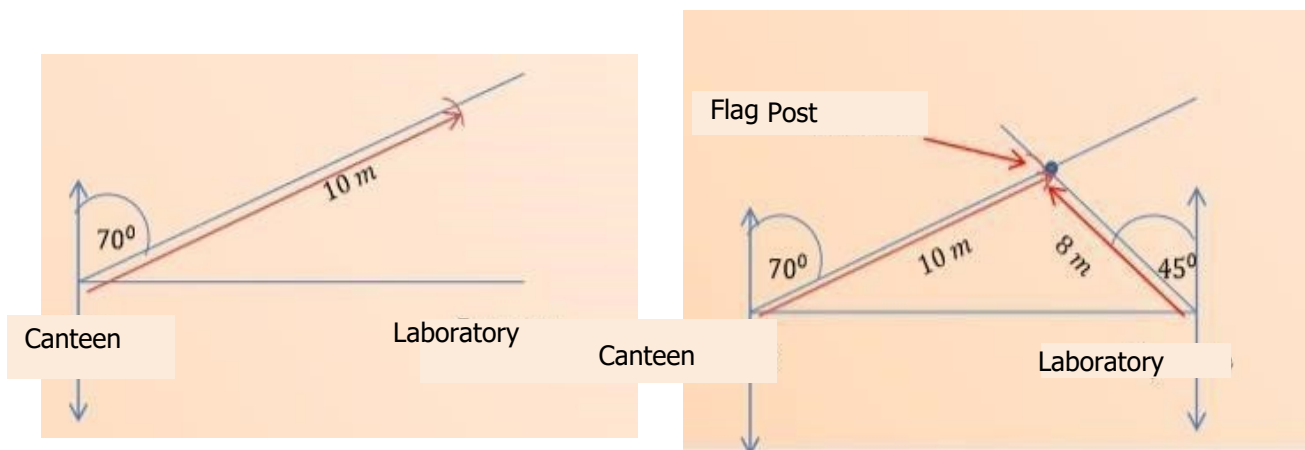
The school laboratory is located in the East of the canteen. The flag post is located in 45° West from the North and 8m away from the laboratory and it is 70° to the East direction from North and 10 m away of the canteen. Draw a suitable rough sketch for the location of the flag post.

First, we must draw the line which indicate the locations of the laboratory and the canteen.



Then, we can mark the main directions at the canteen which are necessary to indicate the location of a place and mark that place.

Finally, we can indicate the location of the flag post from the laboratory.



Refer to the above example and understand on how to indicate a location of a point relevant to the given description. Use the same method to indicate the location of the places in the following exercise.



Exercise 04

1. It is required to construct a pond in-between the school main office and the shrine room. The shrine room is located in the South of the office. The principal decides to locate the pond at a direction of 35° East of South of the office and in the direction of $N 35^{\circ} E$ from the shrine room. Draw a suitable rough sketch of the pond to give to the constructor.
2. In a home garden, there is a mango tree and a coconut tree as the mango tree is located in the west of the coconut tree. The father of this house is planning to plant a jack tree in-between those two trees. According to his plan, the jack tree should be located in 75° West of South from coconut tree and in the direction of $S 15^{\circ} E$ from the mango tree. Draw a rough sketch of the plan which will helpful for the father.
3. Mother is saying that she needs to keep a flower pot in the living room. Father is saying that the following requirements should be satisfied for it.
 - It should be in a direction of $S 80^{\circ} E$ and **3m** away from the main entrance of the house.
 - It is required to be in a position of $N 60^{\circ} E$ from the shrine room. The shrine room is located in the South East direction and 2m away from the main entrance. If you asked to fulfill the wishes of both parents. Draw a rough sketch to place the flower pot.
4. When you are the school games captain in the inter house sports meet, you are having the responsibility to prepare the welcome stage of the march past in a certain inter house sports meet. According to the prefect of games the welcome stageit should be in the direction of $N 30^{\circ} E$ and **3m** from the flag post and $N 60^{\circ} W$ and **5m** from the main stage. The main stage is in the East from the flag post. If the principal sir assigned you to draw a rough sketch of the welcome stage, draw that rough sketch.
5. Due to the Covid-19 pandemic, your best friend is sitting **two meters** away from you in the South direction. The subject teacher is sitting in the direction of $S 40^{\circ} E$ from you and in the direction of $N 20^{\circ} E$ from your friend. Draw a rough sketch to show the location of the subject teacher.

Extra Eercises :- Do the exercises given in the Grade 08 text book in Unit No 24



Answers

Exercise 01

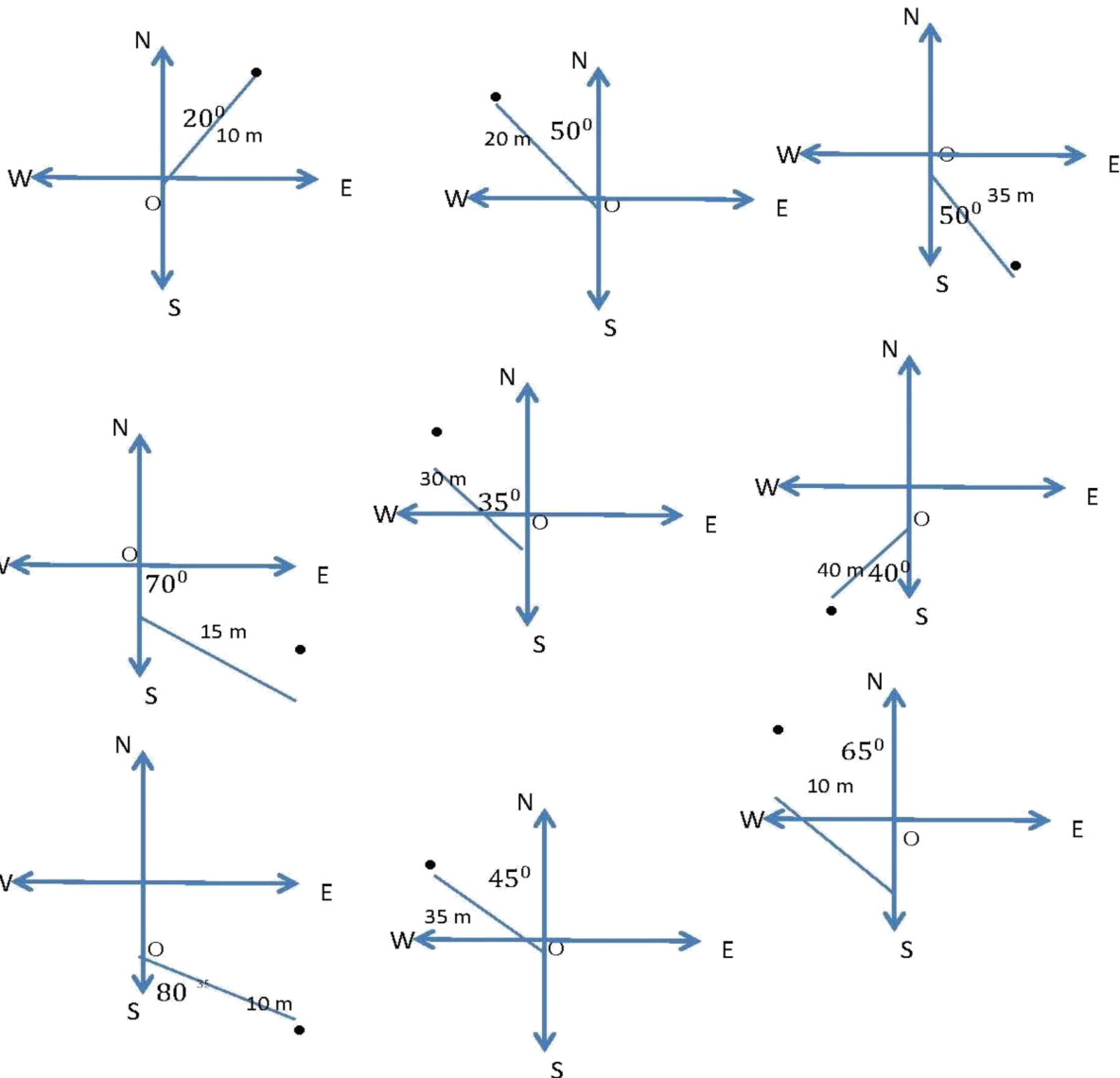
(01) (i) $N 20^{\circ} E$ (ii) $S 20^{\circ} E$ (iii) $S 20^{\circ} W$ (iv) $N 20^{\circ} W$

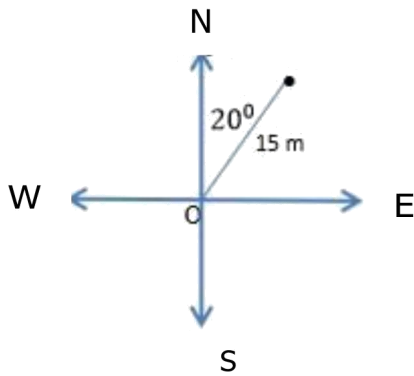
(02) (i) $N 10^{\circ} E$ (ii) $S 40^{\circ} E$ (iii) $S 30^{\circ} E$ (iv) $N 60^{\circ} E$ (v) $N 25^{\circ} W$

Exercise 02

$N 40^{\circ} E$ $S 60^{\circ} W$ $S 65^{\circ} E$ $N 42^{\circ} E$ $N 55^{\circ} E$

Exercise 03





(02) (i) $N 20^{\circ} E$ (ii) $N 40^{\circ} W$ (iii) $S 50^{\circ} W$ (iv) $N 40^{\circ} E$ (v) $S 60^{\circ} W$

Exercise 04

