

CLASS	VI
SUBJECT	MATHS
TOPIC	UNDERSTANDING ELEMENTARY SHAPES
SUBTOPIC	ANGLES- RIGHT, STRAIGHT AND COMPLETE
NO. OF SESSIONS	2

Introduction:

Angles:

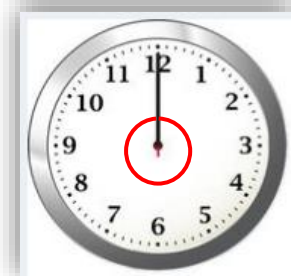
Let us take an example of a clock. When a hand of the clock moves from one position to another, we get an angle.

Suppose the hand of clock moves from 12 to 3. Then, it has covered one-fourth of the revolution. **The angle for one-fourth (1/4th) revolution is called as a right angle (90°).**

Suppose the hand of clock moves from 12 to 6. Then, it has covered one-half of the revolution. **The angle for half (1/2) revolution is called as a straight angle (180°).** We can also call it as 2 right angles.

Similarly, if the hand of clock moves from 12 to 9, then it has covered three-fourth of the revolution. **The angle for three-fourth (3/4th) revolution is 270°.** We can also call it as 3 right angles.

Suppose one hand of the clock is at 12 and then it takes one full turn to come back to 12 again, we say that it has made one revolution. **The angle for one revolution is called as a complete angle (360°).** We can also call it as 4 right angles.



Example 1: Where will the hour hand of clock stop if

- It starts from 4 and makes $\frac{1}{2}$ of a revolution?
- It starts from 8 and covers 270° ?

Sol:

- $\frac{1}{2}$ revolution means that the hour hand rotates by two right angles. So, it will stop at 10.



b) 270° means that the hand rotates by three right angles. So, it will stop at 5.



Example 2: What fraction of a revolution does the minute hand of a clock moves if it goes from 1 to 7 in clockwise direction?

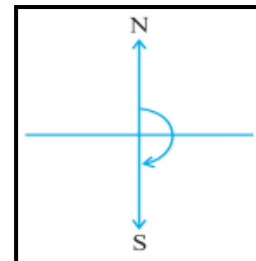
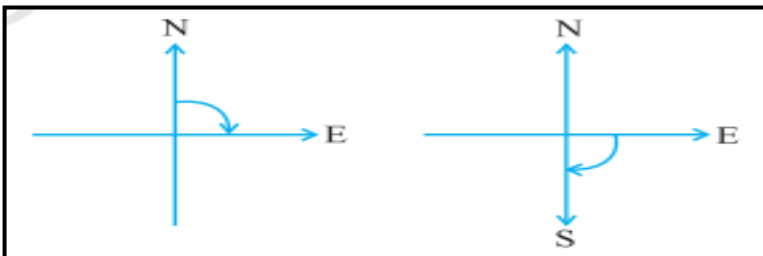
Solution: $\frac{1}{2}$ of a revolution.

Example 3: Find the number of right angle turned through by an hour hand of a clock if it goes from 3 to 12 in clockwise direction?

Solution: It turns through 270° i.e. by 3 right angles.

Angles in directions:

Stand facing towards north. Now turn through right angle clockwise ($\frac{1}{4}^{\text{th}}$ revolution). You now face east. Again, turn through a right angle in clockwise direction ($\frac{1}{4}^{\text{th}}$ revolution) and you face south this time.

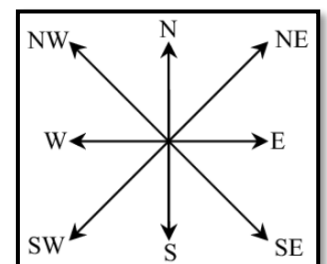


You can also say that you have turned through two right angles or simply a straight angle ($\frac{1}{2}$ revolution).

So, the angle between N and W; W and S; S and E; E and N is 90° .

Now look at some other directions i.e. NE, NW, SE and SW.

The directions N and NE are at 45° to each other. Similarly, the angle between S and SW; S and SE; N and NW (and so on) is also 45° .



Example 4: By how many right angles do you turn from south to west anticlockwise?

Sol: We turn by 3 right angles (270°).

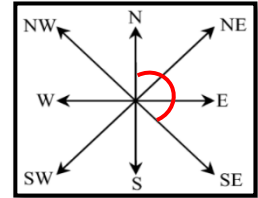
Example 5: A ship is facing north. Firstly, it turns to east in clockwise direction and then stops facing south-east direction by turning in clockwise direction only. By what angle has the ship moved from its initial position?

Sol: Firstly, the ship moved from north to east.

So, the angle by which it has moved = 90°

Then, it moved from east to south-east.

So, the angle by which it has moved = 45°



Total angle by which the ship has turned = $90^{\circ} + 45^{\circ}$
= 135°

Assignment:

- Find the number of right angles turned through by the hour hand of a clock when it goes from 3 to 6.
 - 4
 - 1
 - 2
 - 3
- What is the angle name for half a revolution?
 - Right angle
 - Complete angle
 - Straight angle
 - Reflex angle
- Measure of two angles between hour and minute hands of a clock at 9'O clock are
 - $60^{\circ}, 30^{\circ}$
 - $75^{\circ}, 285^{\circ}$
 - $270^{\circ}, 90^{\circ}$
 - $30^{\circ}, 330^{\circ}$
- What fraction of a revolution does a ship move if it moves from east direction to south and then to north direction?

Homework:

Do Ex- 5.2 from NCERT book.