CHAPTER – 5

Understanding Elementary Shapes

EXERCISE – 5.2

Q.1

What fraction of a clockwise revolution does the hour hand of a clock turn through, when it goes from

(a) 3 to 9 (b) 4 to 7
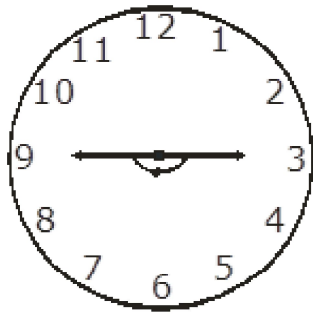(c) 7 to 10 (d) 12 to 9
(e) 1 to 10 (f) 6 to 3

Answer:

A clock completes a clockwise revolution of 360° in a day.

(a) 3 to 9

By looking at the clock we can see when the hour hand goes from 3 to 9 it complete half of the revolution which is 180°.

Fraction $= \dfrac{180}{360} = \dfrac{1}{2}$.

As we know 180° is the half of the 360° so it covers $\frac{1}{2}$.

(b) 4 to 7

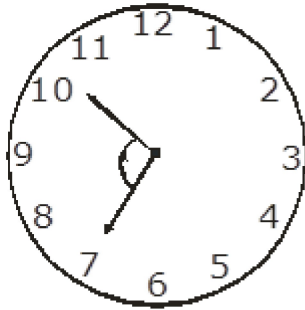By looking at the clock we can see when the hour hand goes from 4 to 7 it makes a right angle which is of 90°.

Fraction $= \frac{90}{360} = \frac{1}{4}$.

(c) 7 to 10

By looking at the clock we can see when the hour hand goes from 7 to 10 it makes a right angle which is of 90°.
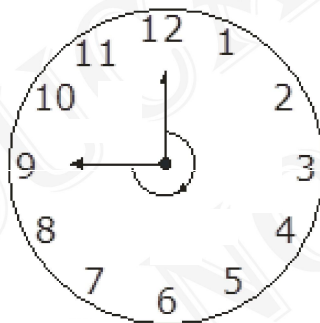
Fraction $= \frac{90}{360} = \frac{1}{4}$.

(d) 12 to 9

By looking at the clock we can see when the hour hand goes from 12 to 9 it basically covers three right angles which is of = 90 + 90 + 90 = 270°.

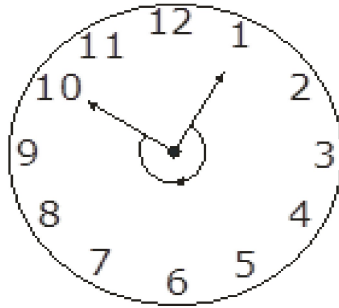Fraction = 270/260 = 3/4

(e) 1 to 10

By looking at the clock we can see when the hour hand goes from 1 to 10 it basically covers three right angles which is of 270°.
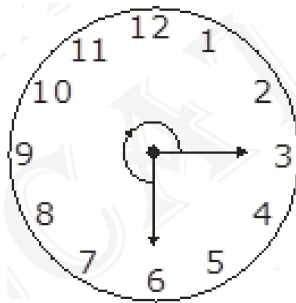
Fraction = 270/360 = 3/4

(f) 6 to 3

By looking at the clock we can see when the hour hand goes from 6 to 3 it basically covers three right angles which is of 270°.

Fraction = 270/360 = ¾

Q. 2

Where will the hand of a clock stop if it.

(a) starts at 12 and makes $\frac{1}{2}$ of a revolution, clockwise?

(b) starts at 2 and makes $\frac{1}{2}$ of a revolution, clockwise?

(c) starts at 5 and makes $\frac{1}{4}$ of a revolution, clockwise?

(d) starts at 5 and makes $\frac{3}{4}$ of a revolution, clockwise?

Answer:

In one complete revolution the hand of clock covers the 360°.

(a) When the hand of the clock starts from 12 and makes half of the revolution clockwise, so it will stop at 6 because half of the revolution is 180°.

(b) When the hand of the clock starts from 2 and makes half of the revolution clockwise which is of 180°, so it will stop at 8.

(c) When the hand of the clock starts from 5 and makes one fourth of the revolution clockwise which is a right angle (90°), so it will stop at 8.
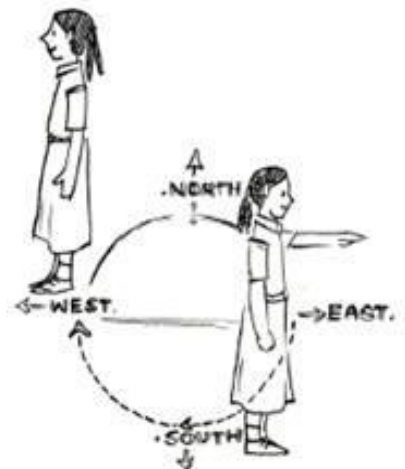
(d) When the hand of the clock starts from 5 and makes three fourth of the revolution clockwise which is of 120°, so it will stop at 2.

Q. 3 Which direction will you face if you start facing

(a) east and make $\frac{1}{2}$ of a revolution clockwise?

(b) east and make $1\frac{1}{2}$ of a revolution clockwise?

(c) west and make $\frac{3}{4}$ of a revolution
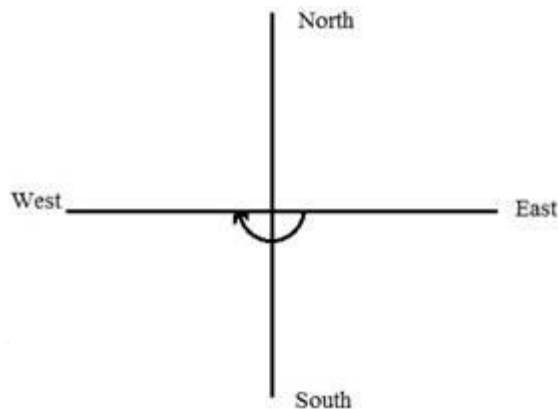
clockwise?

(d) south and make one full revolution?
(Should we specify clockwise or anti-clockwise for this question? Why not?)

Answer:

When we revolve one complete round in either clockwise or anti-clockwise direction we complete an angle of 360° and the two adjacent directions will be at 90°.
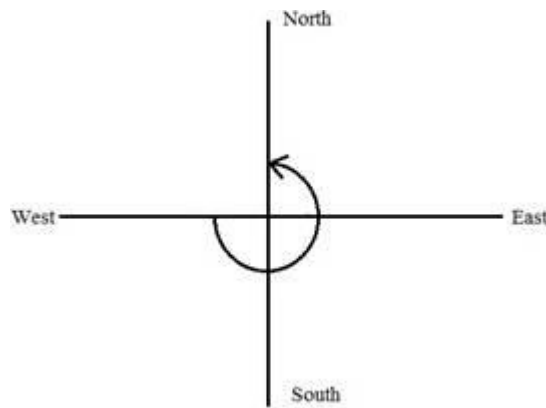
(a) If we start from East and make half of the complete revolution clockwise, we will be facing the west direction.


(b) If we start from East and make one and half of the complete revolution clockwise, we will be facing the west direction.
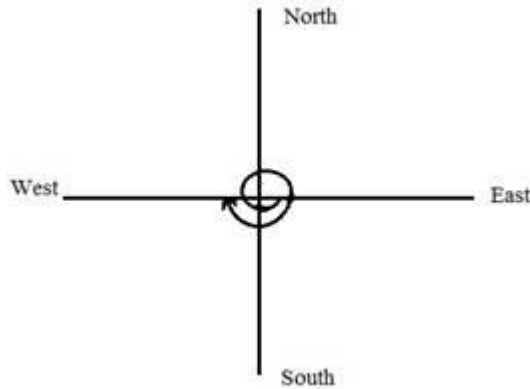
(c) If we start from West and make three fourth of the complete revolution anti-clockwise, we will be facing the north direction.

(d) If we start from South and make a complete revolution clockwise or anti-clockwise, we will be facing the South direction again.
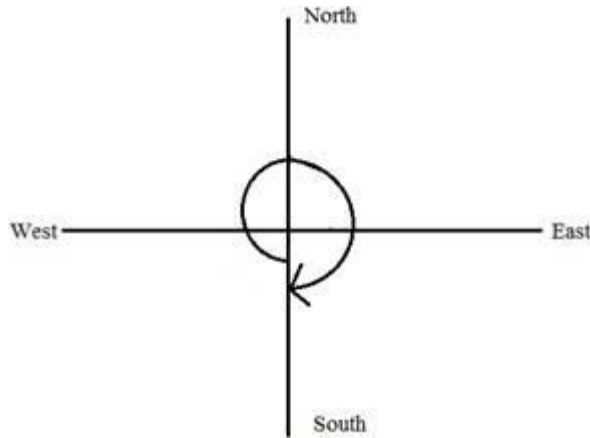
Q. 4

What part of a revolution have you turned through if you stand facing
(a) east and turn clockwise to face north?
(b) south and turn clockwise to face east?
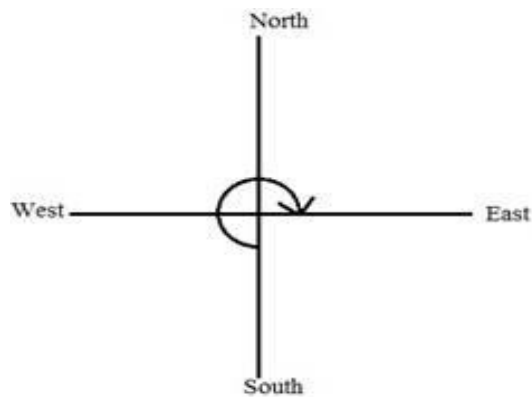(c) west and turn clockwise to face east?

Answer:

As we know that if we complete one revolution whether clockwise or anti-clockwise we will be making an angle of 360°.

(a) If we start from East and turn clockwise to face north then we will be completing the three fourth of the revolution which is of 270°.

North

West —————— East
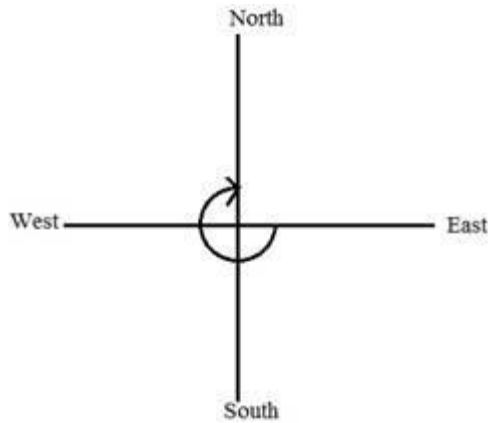
South

(b) If we start from South and turn clockwise to face East then we will be completing the three fourth of the revolution which is of 270°.

North

West —————— East

South

(c) If we start from West and turn clockwise to face east then we will be completing the half of the revolution which is of 180°.

North

West ——————————— East

South
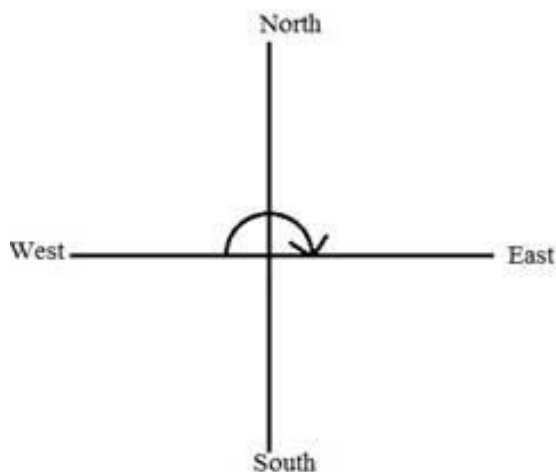
Q. 5

Find the number of right angles turned through by the hour hand of a clock when it goes from

(a) 3 to 6 (b) 2 to 8
(c) 5 to 1 (d) 10 to 1
(e) 12 to 9 (f) 12 to 6

Answer:

A clock hand makes an angle of 360° in on complete round which also made of 4 right angles.

(a) When a clock hand goes from 3 to 6 it makes only 1 right angle as it covers only one fourth of the complete revolution.

(b) When a clock hand goes from 2 to 8, it makes 2 right angles as it covers half of the complete revolution which is of 180°.

(c) When a clock hand goes from 5 to 11, it makes 2 right angles as it covers half of the complete revolution which is of 180°.

(d) When a clock hand goes from 10 to 1 it makes only 1 right angle as it covers only one fourth of the complete revolution.

(e) When a clock hand goes from 12 to 9, it makes 3 right angles as it covers three fourth of the complete revolution which is of 270°.

(f) When a clock hand goes from 12 to 6, it makes 2 right angles as it covers half of the complete revolution which is of 180°.

Q. 6

How many right angles do you make, if you start facing
(a) South and turn clockwise to west?
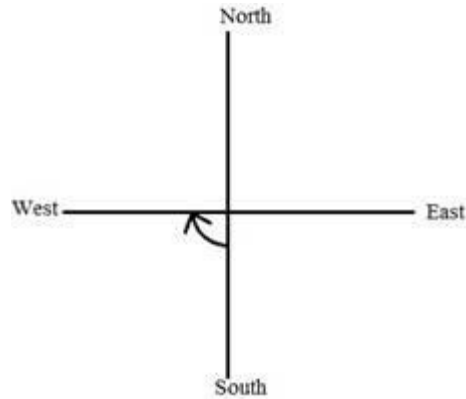(b) north and turn anti-clockwise to east?
(c) west and turn to west?
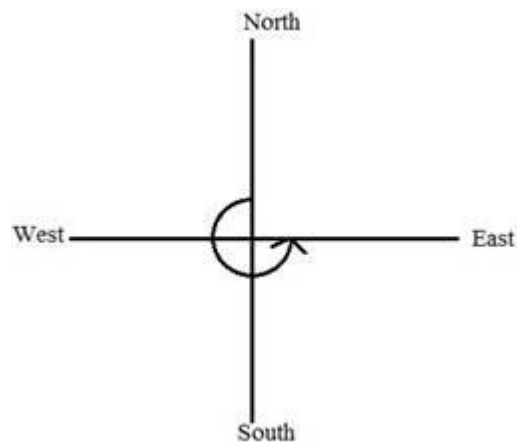(d) south and turn to north?

Answer:

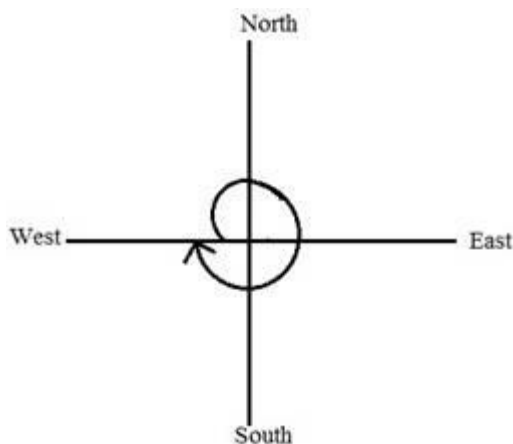One complete revolution is of 360° or we can say 4 right angles.

(a) If you start from South and turn clockwise to west then you are making 1 right angle.
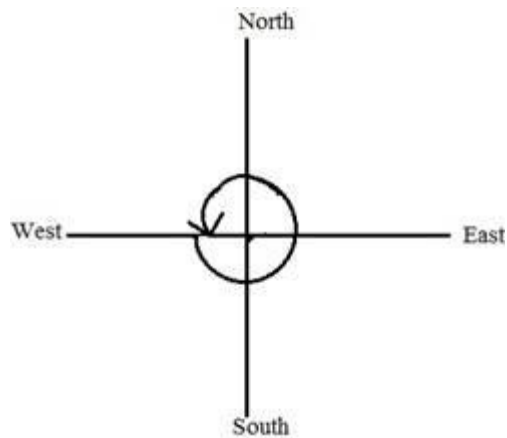
North

West — East

South

(b) If you start from North and turn anti-clockwise to east then you are making 3 right angles.
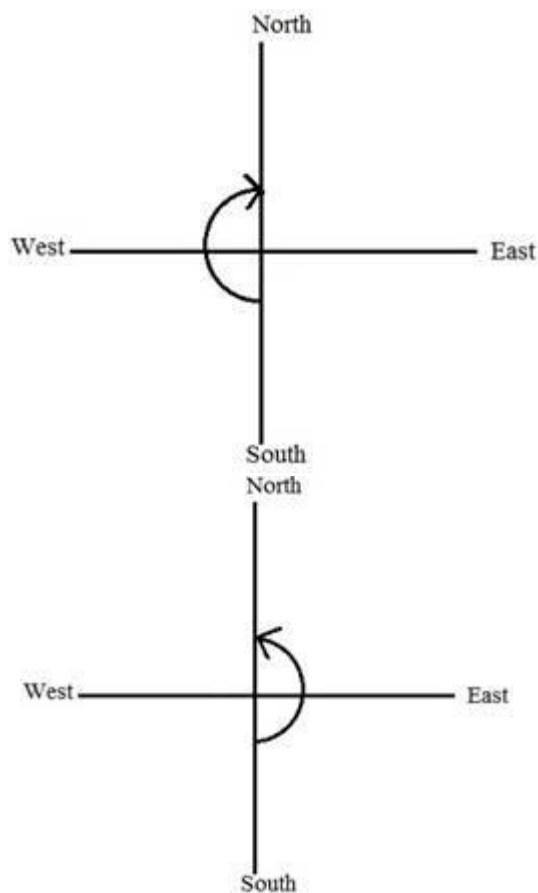
North

West — East

South

(c) If you start from west and turn to west again then you are completing one revolution which is of 4 right angles.

North

West — East

South

North

West ———————— East

South

(d) If you start from South and turn clockwise to north then you are making 2 right angles.

North

West ———————— East

South
North

West ———————— East

South

Q. 7

Where will the hour hand of a clock stop, if it starts
(a) from 6 and turns through 1 right angle?
(b) from 8 and turns through 2 right angles?
(c) from 10 and turns through 3 right angles?
(d) from 7 and turns through 2 straight angles?

Answer:

As we know one complete revolution is of 360° which is consist of 4 right angles.

By looking at the clock we can tell;

(a) If the hour hand of the clock starts from 6 and make 1 right angle then it will stop at 9.

(b) If the hour hand of the clock starts from 8 and make 2 right angles then it will stop at 2.

(c) If the hour hand of the clock starts from 10 and make 3 right angles then it will stop at 7.

(d) If the hour hand of the clock starts from 7 and make 2 straight angles then it will stop at 7.