

Board – CBSE

Class – 6TH

Topic – UNDERSTANDING SHAPES

1. Draw any line segment, say \overline{AB} . Take any point C lying in between A and B. Measure the lengths of AB, BC and AC. Is $AB = AC + CB$?

Solution: Since given that point C lie in between A and B. Hence, all points are lying on the sameline segment \overline{AB} . Therefore for every situation in which point C is lying in between A and B, we may say that $AB = AC + CB$.

For example: AB is a line segment of length 7 cm and C is a point between A and B such that $AC = 3$ cm and $CB = 4$ cm.

Hence, $AC + CB = 7$ cm Since, $AB = 7$ cm

$\therefore AB = AC + CB$ is verified.

2. If A, B, C are three points on a line such that $AB = 5$ cm, $BC = 3$ cm, and $AC = 8$ cm, which one of them lies between the other two?

Solutions: Given $AB = 5$ cm $BC = 3$ cm $AC = 8$ cm Now, it is clear that $AC = AB + BC$

Hence, point B lies between A and C.

3. 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

Solutions: We know that in one complete clockwise revolution, hour hand will rotate by 360°

(a) When hour hand goes from 3 to 9 clockwise, it will rotate by 2 right angles or 180° \therefore Fraction = $180^\circ / 360^\circ = 1 / 2$

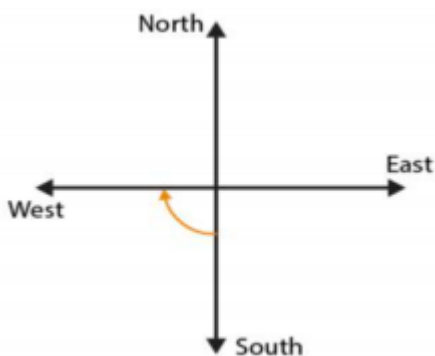


(b) When hour hand goes from 4 to 7 clockwise, it will rotate by 1 right angle or 90° \therefore Fraction = $90^\circ / 360^\circ = 1 / 4$



4. How many right angles do you make if you start facing south and turn clockwise to west?

By revolving one complete round in either clockwise or anti-clockwise direction, we will revolve by 360° and two adjacent directions are at 90° away from each other. If we start facing towards South and turn clockwise to West, we have to make one right angle.



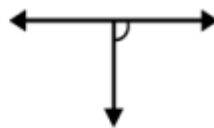
5. Classify each one of the following angles as right, straight, acute, obtuse or reflex:



(i)



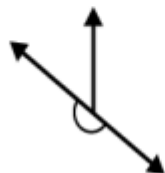
(ii)



(iii)



(iv)



(v)



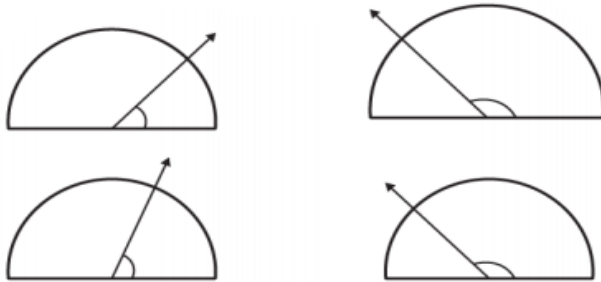
(vi)

Solutions:

- (i) The given angle is acute angle it measures less than 90°
- (ii) The given angle is obtuse angle as it measures more than 90° but less than 180°
- (iii) The given angle is right angle as it measures 90°
- (iv) The given angle is reflex angle as it measures more than 180° but less than 360°
- (v) The given angle is straight angle as it measures 180°

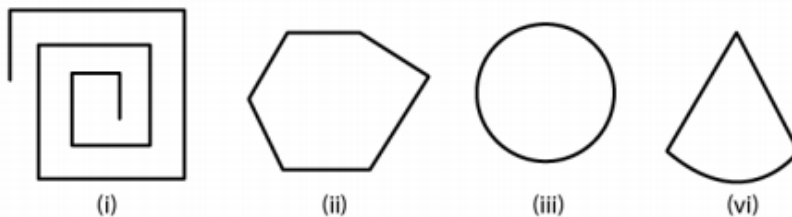
(vi) The given angle is acute angle as it measures less than 90°

6. Find the measure of the angle shown in each figure. (First estimate with your eyes and then find the actual measurement with a protractor).



Solutions: The measurements of the angles shown in the above figure are 40° , 130° , 65° and 135°

7. Examine whether the following are polygons. If any among them is not, say why?



Solutions:

- (i) It is not a closed figure. Hence, it is not a polygon.
- (ii) It is a polygon made of six sides
- (iii) No, it is not a polygon because it is not made of line segments.
- (iv) It is not a polygon as it is not made of line segments.

8. A diagonal is a line segment that joins any two vertices of the polygon and is not a side of the polygon. Draw a rough sketch of a pentagon and draw its diagonals.

Solutions: From the figure, we may find AC, AD, BD, BE and CE are the diagonals.

