

Class 9 Construction PDF

Constructions

Geometrical constructions are the method of representing a geometrical figure by using two instruments, a non-graduated ruler or straight edge and a compass. Here in this chapter, you will learn about some basic constructions. By following the methods provided in the class 9 construction chapter, you will be able to construct a certain variety of triangles. Mentioned below are some basic construction examples, through which you will learn to construct the given figure.

Sample Constructions 1: For a given angle, construct the bisector.

Step 1: Considering the B as centre, draw an arc of any radius, using compass thus resulting rays BA and BC. Name the intersecting points D and E correspondingly.

Step 2: Now consider D and E as centre's to draw arcs such that both intersect each other at F point with a radius more than $\frac{1}{2}$ of DE.

Step 3: At last, draw ray BF that is the required bisector for the ABC angle.

Sample Constructions 2: The next important question in our class 9 constructions chapter is, How to construct the perpendicular bisector for any given line segment.

Step 1: First take A and B as centre's and draw arcs using a compass on both the sides of line segment AB that intersects each other with a radius more than $\frac{1}{2}$ AB.

Step 2: Consider P and Q be the points where arcs intersect. And draw a line to join PQ.

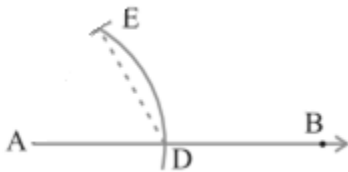
Step 3: Consider M to be the point where AB and PQ line segment intersects. Results, PMQ is the perpendicular bisector of AB.

Sample Constructions 3: Derived from the class 9 constructions chapter, the next question is- For a given ray, how to construct a 60° angle of at the initial point.

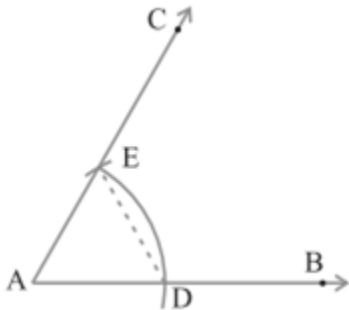


Step 1: First, take A as centre; draw an arc using a compass with any radius. Name D is the intersecting point of AB.

Step 2: Consider the D as the centre and with the same radius as in step 1, draw again an arc and name point E at the intersection.



Step 3: At last, draw a ray called AC to pass through E. Then $\angle CAB$ is the resulting angle of 60° .



Class 9 Coordinate Geometry

In the class 9 Coordinate Geometry topic you will learn how to identify a point in a space or plane. Learning of a point in space, called it as 3D Geometry whereas the same concepts in-plane is called Coordinate Geometry. Here are some important terms and definitions from the class 9 coordinate geometry.

Number Line: The below figure shows the number line, the numbers are marked negative in one direction and positive in the other direction from a fixed point called 0.

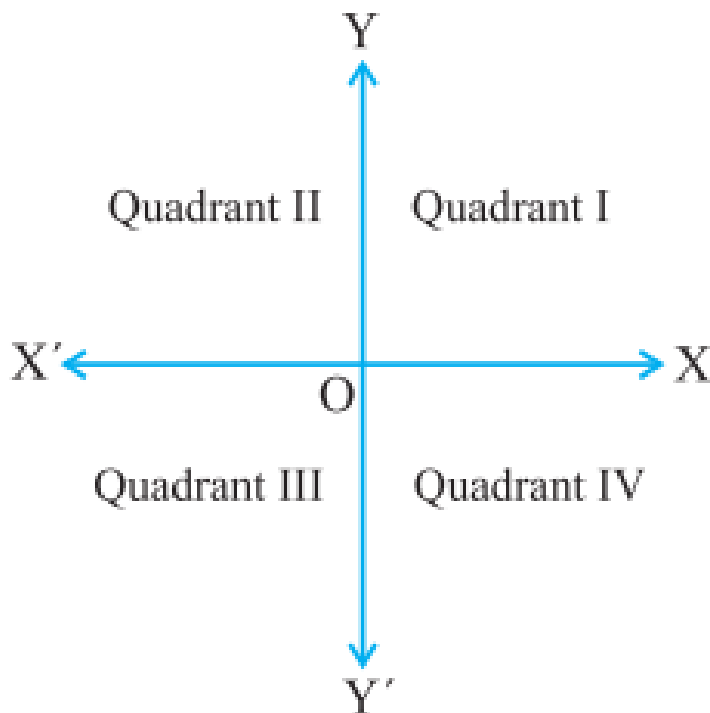
Origin: The reference point where distances are marked both in a positive and negative direction. From the figure, 0 represents the origin.

Cartesian System: The method of fixing a point using vertical and horizontal lines.

(i) The above figure illustrates a Cartesian system drawn by combining horizontal and vertical lines.

(ii) The $X'X$ horizontal line called the x-axis and YY' vertical line called the y-axis.

(iii) Origin: The point where both $X'X$ and YY' intersect each other and is denoted by O .



(iv) Now the axes separate the plane into four parts called “Quadrants”.

Some important pointers of class 9 coordinate geometry and class 9 construction are-

- If a point lies in the 1st quadrant, then the point will form $(+, +)$ because the 1st quadrant is with the positive x-axis and the positive y-axis.
- If a point lies in the 2nd quadrant, then the point will form $(-, +)$ because the 2nd quadrant is with the negative x-axis and the positive y-axis
- If a point lies in the 3rd quadrant, then the point will form $(-, -)$ because the 3rd quadrant is with the negative x-axis and the negative y-axis
- If a point lies in the 4th quadrant, then the point will form $(+, -)$ because the 4th quadrant is with the positive x-axis and the negative y-axis

- The resulting plane is called a Cartesian plane and the axes are called coordinate axes

Coordinates of a Point

From the figure shown above, the point A is obtained after moving 2 units on the x-axis and 3 units on the y-axis.

- The +2 of point A represents X-coordinate and is called abscissa
- From the figure +3 of point A represents Y-coordinate and called as ordinate.
- The coordinates in the brackets show that the x-coordinate comes first, followed by the y-coordinate. Therefore (2, 3) are the coordinates of point A.