

# Chapter 6

## Coordinates

<b>Questions: 6.1–6.14</b>
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Concept : Finding the coordinates of a point

- Q.6.1** In a coordinate system with 2 centimetres as the unit of length, the coordinates of two points  $A$ ,  $B$  are  $(2, 4)$  and  $(6, 8)$ . With the same axes, if the unit of length is changed to 1 centimetre, what would be the coordinates of these points? If the coordinates of a point  $C$  is  $(3, 6)$  with respect to the unit 1 centimetre, what were its coordinates when the unit was 2 centimetres?

**Score : 3, Time : 5 minutes**

Concept : Finding the coordinates of a point

- Q.6.2** A circle is drawn with centre at  $(-1, 0)$  and radius 5 units in a coordinate system. What are the coordinates of the points at which it cuts the  $x$ -axis? And the points where it cuts the  $y$ -axis?

**Score : 4, Time : 8 minutes**

Concept : Finding the coordinates of a point

- Q.6.3** A rectangle is drawn with sides parallel to the coordinate axes and two of its vertices are  $(2, 4)$  and  $(8, 12)$ . Draw the rectangle without drawing the coordinate axes and mark these vertices properly. Find the coordinates of the other two vertices. Also, find its length and breadth. What is the length of its diagonal?

**Score : 4, Time : 7 minutes**

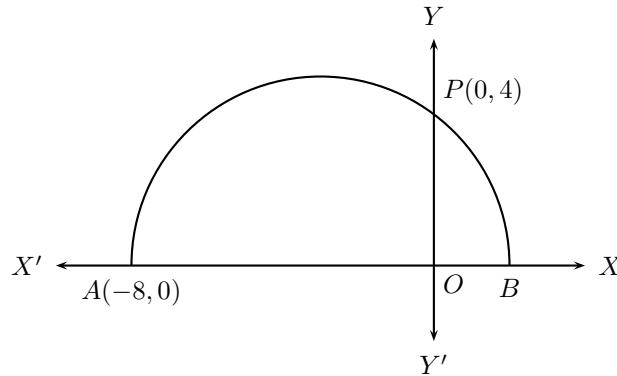
Concept : Finding the coordinates of a point

- Q.6.4** In the equilateral triangle  $ABC$ , the coordinates of  $A$  are  $(-4, 0)$  and the coordinates of  $B$  are  $(6, 0)$ . The perpendicular from  $C$  to  $AB$  meets it at  $P$ . Draw coordinate axes and a rough sketch of the triangle. What are the coordinates of  $P$ ? What is the length of  $CP$ ? What are the coordinates of  $C$ ?

**Score : 4, Time : 7 minutes**

Concept : Finding the coordinates of a point

**Q.6.5** In the figure, the semicircle with  $AB$  as diameter passes through the point  $P$ .

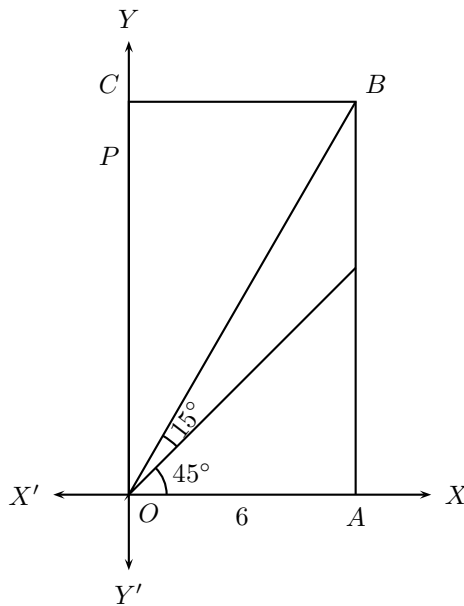


What are the lengths of  $OA$  and  $OP$ ? What are the coordinates of  $B$ ?

**Score : 3, Time : 5 minutes**

Concept : Finding the coordinates of a point

**Q.6.6** In the figure,  $OA = 6$  units,  $\angle AOP = 45^\circ$ ,  $\angle BOP = 15^\circ$ .



What are the coordinates of  $P$ ? If a circle is drawn with  $O$  as centre and  $OB$  as radius, what would be the coordinates of the points where it cuts the  $x$ -axis?

**Score : 3, Time : 6 minutes**

Concept : Finding the coordinates of a point

**Q.6.7** In  $\triangle ABC$ , drawn above the  $x$ -axis with  $\angle A < 90^\circ$ , the coordinates of  $A$  are  $(2, 0)$  and those of  $B$  are  $(8, 0)$ . The length of  $AC$  is 5 units and the area of the triangle is 12 square units. Draw a rough sketch of coordinate axes and the triangle. Find the coordinates of  $C$

**Score : 4, Time : 8 minutes**

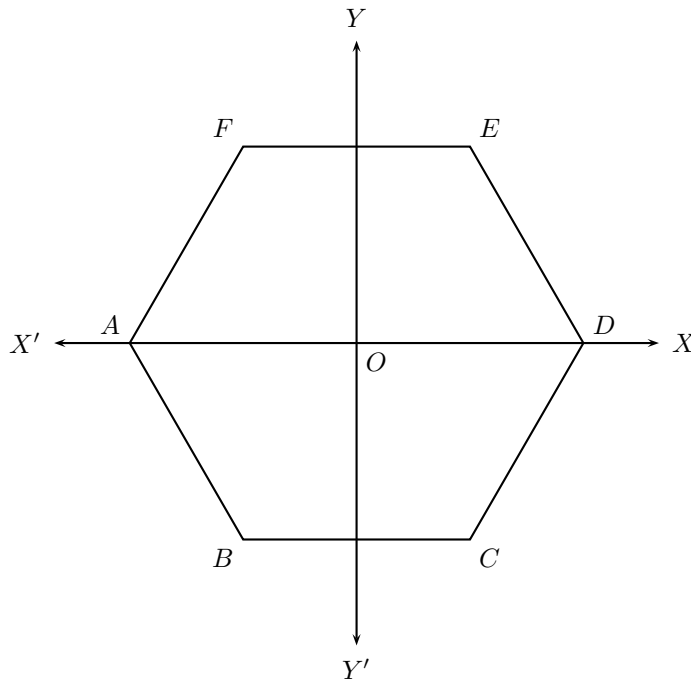
Concept : Finding the coordinates of a point

**Q.6.8** In  $\triangle PQR$ , drawn above the  $x$ -axis with  $\angle P > 90^\circ$ , the coordinates of  $P$  are  $(-4, 3)$ , those of  $Q$  are  $(6, 3)$ . The length of  $PR$  is 13 units and the area of the triangle is 60 square units. Draw a rough sketch of the triangle. Find the coordinates of  $R$

**Score : 5, Time : 11 minutes**

Concept : Finding the coordinates of a point

**Q.6.9** In the figure,  $ABCDEF$  is a regular hexagon with each side 6 units.



Find the coordinates of  $A$ ,  $D$ ,  $E$ . What is the radius of the circle which touches all six sides of this hexagon?

**Score : 4, Time : 7 minutes**

Concept : Coordinates of a point on lines parallel to axes

**Q.6.10** From the points given below, find the pair which are on a line parallel to the  $x$ -axis and the pair which are on a line parallel to the  $y$ -axis

$A(4, 3)$ ,  $B(3, 5)$ ,  $C(-6, 3)$ ,  $D(3, -2)$ ,  $E(5, 4)$

**Score : 2, Time : 2 minutes**

Concept : Distance between points on lines parallel to axes

**Q.6.11** What is the distance between the points  $(-3, 2)$  and  $(4, 2)$ ? Find the coordinates of the points on the line joining them, at a distance 5 units from  $(4, 2)$

**Score : 2, Time : 3 minutes**

Concept : Distance between points on lines parallel to axes

- Q.6.12** The coordinates of a point on a line parallel to the  $y$ -axis are  $(5, 2)$ . What is the distance between this line and the  $y$ -axis? Find the coordinates of the point where this line meets the  $x$ -axis. What is the distance between these two points?

**Score : 3, Time : 4 minutes**

Concept : Distance between points on lines parallel to axes

- Q.6.13** The line joining  $(-2, 5)$ ,  $(4, 5)$  and the line joining  $(3, 6)$ ,  $(3, -3)$  intersect at a point. What are the coordinates of this point? What are the coordinates of the points on the first line which are 6 units from this point of intersection?

**Score : 3, Time : 5 minutes**

Concept : Distance between points on lines parallel to axes

- Q.6.14** The point  $(-4, 3)$  is on a line parallel to the  $x$ -axis and the point  $(6, -3)$  is on a line parallel to the  $y$ -axis. Draw a rough sketch based on these facts. What are the coordinates of the point of intersection of these lines? Which of the given points is farther from this point of intersection?

**Score : 4, Time : 6 minutes**