

Chapter 7 Coordinate Geometry

UNIT TEST

Duration: 1 hour

Marks: 30

SECTION A

Each carry 1 mark

1. The co-ordinates of vertex A of $\triangle ABC$ are $(-4, 2)$ and a point D which is mid-point of BC are $(2, 5)$. The coordinates of centroid of $\triangle ABC$ are

- a) $(0, 4)$ b) $(-1, \frac{7}{2})$ c) $(-2, \frac{7}{3})$ d) $(0, 2)$

2. The distance between the points $(a \cos q + b \sin q, 0)$ and $(0, a \sin q - b \cos q)$ is:

- a) $a^2 + b^2$ b) $a^2 - b^2$ c) $\sqrt{a^2 + b^2}$ d) $\sqrt{a^2 - b^2}$

3. The point which lies on the perpendicular bisector of the line segment joining the points $A(-2, -5)$ and $B(2, 5)$ is

- a) $(0, 0)$ b) $(0, 2)$ c) $(2, 0)$ d) $(-2, 0)$

4. Assertion: The point on the X-axis which is equidistant from the points $A(-2, 3)$ and $B(5, 4)$ is $(2, 0)$

Reason: The coordinates of the point $P(x, y)$ which divides the line segment joining the points

$A(x_1, y_1)$ and $B(x_2, y_2)$ in the ratio $m_1:m_2$ is $(\frac{m_1x_2+m_2x_1}{m_1+m_2}, \frac{m_1y_2+m_2y_1}{m_1+m_2})$

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

SECTION B

Each carry 2 marks

5. Points $A(-1, y)$ and $B(5, 7)$ lie on a circle with centre $O(2, -3y)$. Find the value(s) of y . Hence, find the radius of the circle.

6. Find the ratio in which the point $P(m, 6)$ divides the join of $A(-4, 3)$ and $B(2, 8)$. Also, find the value of 'm'.

7. If $Q(0, 1)$ is equidistant from $P(5, -3)$ and $R(x, 6)$, find the value of x . Also, find the distance QR .

SECTION C

Each carry 3 marks

8. The line segment joining the points $(3, -4)$ and $(1, 2)$ is trisected at the points P and Q . If the coordinates of P and Q are $(p, -2)$ and $(\frac{5}{3}, q)$ respectively, find the value of p and q .

9. Find a relation between x and y such that the point (x, y) is equidistant from the point $(3, 6)$ and $(-3, 4)$.

SECTION D

Each carry 5 marks

10. $A(6, 6)$, $B(12, 6)$, $C(14, 2)$ and $D(3, 2)$ are the vertices of a trapezium $ABCD$. Perpendicular AP divides DC in the ratio $3:8$. Find the area of the trapezium.

11. If the mid-point P of the line joining $(3, 4)$ and $(k, 7)$ is (x, y) and the line $2x + 2y + 1 = 0$ passes through P , find the value of k . Also, find the co-ordinates of P .

SECTION E

12. In a city, a circular park is situated with center $O(3, 3)$. There are two exit gates P and Q which are opposite to each other. The location of exit gate 'P' is $(5, 3)$.

i) Find the location of exit gate 'Q'.

ii) What will be the distance between two exit gates P and Q ?

iii) If a pole $R(x, 5)$ is standing on a boundary of a circular park that is equidistant from P and Q then, find the value of 'x'.

(Or)

In what ratio does the center $O(3, 3)$ divide the line segment joining the points P and Q ?

UNIT TEST

1. a) $(0,4)$

2. c) $\sqrt{a^2 + b^2}$

3. a) $(0, 0)$

4. (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

5. $y = -1$, Radius = 5 and $y = 7$, Radius = $\sqrt{793}$.

6. $3:2; m = \frac{-2}{5}$

7. $\pm 4; \sqrt{41}$

8. $\frac{7}{3}, 0$

9. $3x + 4y - 5 = 0$

10. 24 sq. units

11. $-15; \left(-6, \frac{11}{2}\right)$

12. i) $(1, 3)$ ii) 4 units iii) 3 (Or) 1:1