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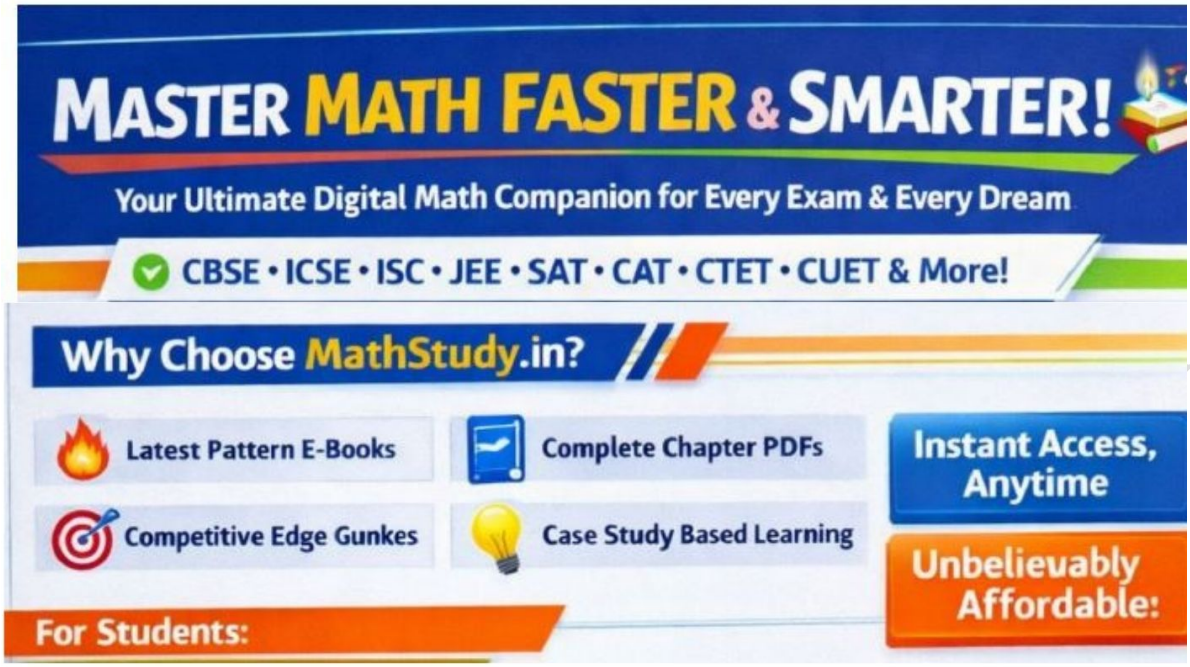

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SOLUTIONS: COORDINATE GEOMETRY

~~Mathematics | Class IX (2026/CoordGeo/09/NCERT/001)~~

Section A: Basic Concepts

1. **(c) Origin.** The horizontal x-axis and vertical y-axis intersect at $(0, 0)$, known as the origin.

2. **(b) y-axis.** Any point with an x-coordinate (abscissa) of 0 lies on the y-axis.

3. **(b) 5 units.** The distance from the x-axis is given by the absolute value of the y-coordinate (ordinate). $|5| = 5$.

4. **(a) II and IV.** $(-3, 5)$ has $(-, +)$ which is 2^{nd} Quadrant. $(3, -5)$ has $(+, -)$ which is 4^{th} Quadrant.

5. **(c) 0.** Every point on the y-axis has the form $(0, y)$.

Section B: Short Answer Questions

6. **Point A:** 3 units left $\implies x = -3$; 2 units above $\implies y = 2$. Coordinates: **(-3, 2)**.
   Point B: On x-axis $\implies y = 0$; 5 units right $\implies x = 5$. Coordinates: **(5, 0)**.

7. Since the point lies on the y-axis, its abscissa (x) is 0. Given ordinate (y) is -5. Coordinates: **(0, -5)**.

8. - $(4, -2) \implies$ **IV Quadrant**
   - $(-3, -5) \implies$ **III Quadrant**
   - $(0, 3) \implies$ **y-axis**
   - $(7, 0) \implies$ **x-axis**

9. $P(1, 0)$ and $Q(4, 0)$ lie on the x-axis with a distance of 3 units. $S(1, 3)$ is 3 units above P. For $PQRS$ to be a square, R must be 3 units above Q.
   Coordinates of **R: (4, 3)**.

Section C: Long Answer Questions

10. Base BC lies on the line $y = 2$. Length of $BC = |4 - (-2)| = 6$ units.
    Height h is the vertical distance from $A(2, 5)$ to the line $y = 2$. $h = |5 - 2| = 3$ units.
    Area $= \frac{1}{2} \times$ base $\times$ height $= \frac{1}{2} \times 6 \times 3 =$ **9** sq. units.

11. Distance from x-axis $= |y| = 5$; distance from y-axis $= |x| = 7$.

    (a) 2^{nd} Quadrant $(-, +) \implies (\mathbf{-7}, \mathbf{5})$

    (b) 3^{rd} Quadrant (-, -) $\implies (\mathbf{-7}, \mathbf{-5})$

    (c) 4^{th} Quadrant (+, -) $\implies (\mathbf{7}, \mathbf{-5})$

    (d) 1^{st} Quadrant (+, +) $\implies (\mathbf{7}, \mathbf{5})$

12. Length $AB = |3 - (-2)| = 5$ units. Breadth $BC = |3 - (-2)| = 5$ units.
    Since all sides are equal and axes are perpendicular, the figure is a **Square**.
    Perimeter $= 4 \times$ side $= 4 \times 5 =$ **20** units.

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13. Vertex 1: $(0, 0)$. Long side on x-axis (length 6). 2^{nd} Quadrant means x is negative or y is positive. Since one vertex is in 2^{nd} quadrant:
The vertices are **(0, 0), (-6, 0), (-6, 3), and (0, 3)**.

Section D: True or False

1. **False.** The ordinate is the perpendicular distance from the *x-axis*.
2. **True.** The origin is the intersection of both axes.
3. **True.** III Quadrant coordinates are $(-x, -y)$.
4. **True.** The distance from the y-axis is the absolute value of the x-coordinate.

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