Class: **X**	Subject: **Mathematics**	Session: **2025-26**
Chapter: **Ch 7: Coordinate Geometry (PYQ)**		

PREVIOUS YEAR QUESTIONS (PYQ)

Chapter 7: Coordinate Geometry

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This document contains chapter-wise Previous Year Questions from CBSE Class X Board Examinations (2019–2025) for **Chapter 7: Coordinate Geometry**. Each question includes the year of examination, marks allotted, and direct answer for quick revision.

⚠ NOTE: As per CBSE 2025–26 Syllabus. Topics: Distance Formula, Section Formula (internal division), Midpoint Formula. ✘ EXCLUDED: Area of a Triangle using coordinates (deleted from syllabus).

SECTION A: Multiple Choice Questions (1 Mark Each)

[CBSE 2024 | 1 Mark]

Q1. The distance between the points (2, −2) and (−1, x) is 5. One of the values of x is:

(a) −6
(b) 2
(c) −2
(d) 1

Ans: (b) 2. $\sqrt{[(-1-2)^2 + (x+2)^2]} = 5 \Rightarrow 9 + (x+2)^2 = 25 \Rightarrow (x+2)^2 = 16 \Rightarrow x = 2$ or $x = -6$

[CBSE 2023 | 1 Mark]

Q2. The distance of the point (−3, 4) from the x-axis is:

(a) 3
(b) −3
(c) 4
(d) 5

Ans: (c) 4. Distance from x-axis = |y-coordinate| = |4| = 4 units.

[CBSE 2024 | 1 Mark]

Q3. The midpoint of the line segment joining A(2, −5) and B(−2, 5) is:

(a) (0, 0)
(b) (2, −5)
(c) (0, 5)
(d) (2, 0)

Ans: (a) (0, 0). Midpoint = ((2−2)/2, (−5+5)/2) = (0, 0)

[CBSE 2023 | 1 Mark]

Q4. If P(a/3, 4) is the midpoint of the line segment joining A(−6, 5) and B(−2, 3), then the value of a is:

(a) −4
(b) −12
(c) 12
(d) −6

Ans: (b) −12. a/3 = (−6+(−2))/2 = −4 ⇒ a = −12

[CBSE 2022 | 1 Mark]

Q5. The point on the x-axis which is equidistant from (2, −5) and (−2, 9) is:

(a) (−7, 0)
(b) (7, 0)
(c) (−4, 0)
(d) (4, 0)

Ans: (a) (−7, 0). Let P(x, 0). $PA^2 = PB^2 \Rightarrow (x-2)^2+25 = (x+2)^2+81 \Rightarrow -8x = 56 \Rightarrow x = -7$

[CBSE 2021 | 1 Mark]

Q6. If the point P(k, 0) divides the line segment joining A(2, −2) and B(−7, 4) in the ratio 1:2, then k =

(a) 1
(b) 2
(c) −2
(d) −1

Ans: (d) −1. k = (1×(−7) + 2×2)/(1+2) = (−7+4)/3 = −1

[CBSE 2020 | 1 Mark]

Q7. The distance between (a, b) and (−a, −b) is:

(a) $2\sqrt{(a^2+b^2)}$
(b) $\sqrt{(a^2+b^2)}$
(c) 2(a+b)
(d) 0

Ans: (a) $2\sqrt{(a^2+b^2)}$. $d = \sqrt{[(2a)^2+(2b)^2]} = 2\sqrt{(a^2+b^2)}$

[CBSE 2022 | 1 Mark]

Q8. If the vertices of a parallelogram ABCD are A(6, 1), B(8, 2), C(9, 4) and D(p, 3), then p =

(a) 5
(b) 6
(c) 7
(d) 8

Ans: (c) 7. Diagonals bisect each other. Mid AC = Mid BD. (6+9)/2 = (8+p)/2 ⇒ 15 = 8+p ⇒ p = 7

[CBSE 2019 | 1 Mark]

Q9. The coordinates of the point which divides the line joining (1, −2) and (4, 7) in the ratio 1:2 are:

(a) (2, 1)
(b) (3, 4)
(c) (1, 0)
(d) (2, 3)

Ans: (a) (2, 1). x = (1×4+2×1)/3 = 6/3 = 2, y = (1×7+2×(−2))/3 = 3/3 = 1

[CBSE 2019 | 1 Mark]

Q10. The distance of the point (3, 5) from the y-axis is:

(a) 3
(b) 5
(c) 8
(d) √34

Ans: (a) 3. Distance from y-axis = |x-coordinate| = |3| = 3 units.

SECTION B: Assertion-Reason Questions (1 Mark Each)

[CBSE 2024 | 1 Mark]

Q11. Assertion (A): The point (−1, 6) divides the line segment joining A(−3, 10) and B(6, −8) in the ratio 2:7.
Reason (R): The section formula for internal division is: $((m_1x_2 + m_2x_1)/(m_1+m_2), (m_1y_2 + m_2y_1)/(m_1+m_2))$.

(a) Both true, R is correct explanation of A
(b) Both true, R is not correct explanation
(c) A is true, R is false
(d) A is false, R is true

Ans: (a) Both true and R explains A. Using section formula 2:7: x = (2×6+7×(−3))/9 = (12−21)/9 = −1 ✔

[CBSE 2023 | 1 Mark]

Q12. Assertion (A): The midpoint of a line segment divides it in the ratio 1:1.
Reason (R): The midpoint formula is $((x_1+x_2)/2, (y_1+y_2)/2)$.

(a) Both true, R is correct explanation of A
(b) Both true, R is not correct explanation
(c) A is true, R is false
(d) A is false, R is true

Ans: (a) Both true and R explains A. Midpoint divides in 1:1 and the formula is a special case of section formula.

SECTION C: Short Answer Questions (2 Marks Each)

[CBSE 2024 | 2 Marks]

Q13. Find the ratio in which the y-axis divides the line segment joining the points (5, 3) and (−1, 6).

Ans: Let ratio = k:1. x = (k(−1)+1(5))/(k+1) = 0 ⇒ −k+5 = 0 ⇒ k = 5. Ratio = 5:1.

[CBSE 2022 | 2 Marks]

Q14. Find a point on the x-axis which is equidistant from the points (7, 6) and (3, 4).

Ans: Let P(x, 0). $PA^2 = PB^2 \Rightarrow (x-7)^2+36 = (x-3)^2+16 \Rightarrow x^2-14x+49+36 = x^2-6x+9+16 \Rightarrow -8x = -60 \Rightarrow x = 7.5$. Point: (7.5, 0)

[CBSE 2021 | 2 Marks]

Q15. Find the coordinates of the points of trisection of the line segment joining (3, −2) and (−3, −4).

Ans: P divides in 1:2: P = (1(−3)+2(3))/3, (1(−4)+2(−2))/3) = (1, −8/3). Q divides in 2:1: Q = (2(−3)+1(3))/3, (2(−4)+1(−2))/3) = (−1, −10/3).

[CBSE 2020 | 2 Marks]

Q16. Show that the points A(1, 7), B(4, 2), C(−1, −1) and D(−4, 4) are the vertices of a square.

Ans: AB = √(9+25) = √34. BC = √(25+9) = √34. CD = √(9+25) = √34. DA = √(25+9) = √34. All sides equal. AC = √(4+64) = √68. BD = √(64+4) = √68. Diagonals equal. Hence ABCD is a square.

SECTION D: Short Answer Questions (3 Marks Each)

[CBSE 2024 | 3 Marks]

Q17. Points A(−1, y) and B(5, 7) lie on a circle with centre O(2, −3y) such that AB is a diameter. Find y and the radius.

Ans: O is midpoint of AB: 2 = (−1+5)/2 ✓. −3y = (y+7)/2 ⇒ −6y = y+7 ⇒ −7y = 7 ⇒ y = −1. O = (2, 3), A = (−1, −1). Radius = OA = √(9+16) = 5 units.

[CBSE 2022 | 3 Marks]

Q18. If A(1, 2), B(4, 3) and C(6, 6) are the three vertices of a parallelogram ABCD, find the coordinates of the fourth vertex D.

Ans: Diagonals bisect: Mid AC = Mid BD. Mid AC = ((1+6)/2, (2+6)/2) = (3.5, 4). Mid BD: (3.5, 4) = ((4+x)/2, (3+y)/2) ⇒ x = 3, y = 5. D = (3, 5).

[CBSE 2021 | 3 Marks]

Q19. In what ratio does the point P(2, 5) divide the line segment joining A(8, 2) and B(−6, 9)?

Ans: Let ratio = k:1. x: (k(−6)+8)/(k+1) = 2 ⇒ −6k+8 = 2k+2 ⇒ 8k = 6 ⇒ k = 3/4. Ratio = 3:4.

[CBSE 2019 | 3 Marks]

Q20. Find the coordinates of the point which divides the line segment joining (−1, 7) and (4, −3) in the ratio 2:3.

Ans: x = (2(4)+3(−1))/(2+3) = (8−3)/5 = 1. y = (2(−3)+3(7))/(2+3) = (−6+21)/5 = 3. Point = (1, 3).

SECTION E: Long Answer Questions (5 Marks Each)

[CBSE 2023 | 5 Marks]

Q21. If A(−5, 7), B(−4, −5), C(−1, −6) and D(4, 5) are the vertices of a quadrilateral, find its type by calculating lengths of all sides and diagonals.

Ans: AB = √(1+144) = √145. BC = √(9+1) = √10. CD = √(25+121) = √146. DA = √(81+4) = √85. Since AB ≠ CD and BC ≠ DA, it is neither a parallelogram nor any special quad. It is a general quadrilateral.

[CBSE 2020 | 5 Marks]

Q22. The coordinates of two adjacent vertices of a parallelogram are (3, 2) and (−1, 0), and its diagonals intersect at (2, −5). Find the coordinates of the other two vertices.

Ans: Let A(3,2), B(−1,0). Diagonal intersection O(2,−5). Mid AC = O: C = (2×2−3, 2×(−5)−2) = (1, −12). Mid BD = O: D = (2×2−(−1), 2×(−5)−0) = (5, −10). Other vertices: C(1, −12) and D(5, −10).

SECTION F: Case Study Based Questions (4 Marks Each)

[CBSE 2025 | 4 Marks]

Q23. Case Study: In a GPS-based city map, a school is located at A(3, 4), a hospital at B(7, 4) and a park at C(5, 8).
(i) Find the distance between the school and hospital.
(ii) Find the midpoint of the line segment AB.
(iii) If a library D divides AC in ratio 1:1, find its coordinates.
(iv) Find the distance of the park from the x-axis.

Ans: (i) AB = √[(7−3)²+0] = 4 units. (ii) Mid AB = ((3+7)/2, (4+4)/2) = (5, 4). (iii) D = midpoint of AC = ((3+5)/2, (4+8)/2) = (4, 6). (iv) Distance from x-axis = y-coordinate of C = 8 units.

[CBSE 2024 | 4 Marks]

Q24. Case Study: Two friends Raj and Ajay are standing at points P(2, 8) and Q(6, 4) in a park. Their friend Simran wants to stand exactly between them.
(i) Find the coordinates where Simran should stand.
(ii) Find the distance between Raj and Ajay.
(iii) If another friend stands at R(10, 0), find the distance QR.
(iv) Find the point that divides PQ in ratio 3:1.

Ans: (i) Midpoint PQ = ((2+6)/2, (8+4)/2) = (4, 6). (ii) PQ = √(16+16) = 4√2 units. (iii) QR = √(16+16) = 4√2 units. (iv) x = (3(6)+1(2))/4 = 5, y = (3(4)+1(8))/4 = 5. Point = (5, 5).

★ PYQ SUMMARY & ANALYSIS

Topic	Years Asked	Frequency	Marks
Distance Formula	2019–2025	Every Year	1–3
Section Formula (ratio)	2019–2025	Every Year	1–3
Midpoint Formula	2019–2025	Every Year	1–2
Equidistant point problems	2019–2024	5 times	2–3
Parallelogram vertices (diag. bisect)	2019–2024	4 times	3–5
Trisection of line segment	2019–2023	3 times	2–3
Prove quadrilateral type	2019–2023	3 times	3–5
Case Study (map/coordinate)	2024–2025	2 times	4

Key Observations for Students:

- ✔ Distance Formula: $d = \sqrt{[(x_2-x_1)^2 + (y_2-y_1)^2]}$ — used in 90% of problems.
- ✔ Section Formula: $P = ((m_1x_2+m_2x_1)/(m_1+m_2), (m_1y_2+m_2y_1)/(m_1+m_2))$
- ✔ Midpoint is special case of Section Formula with ratio 1:1.
- ✔ "Equidistant from" ⇒ PA = PB ⇒ $PA^2 = PB^2$ (square both sides, cancel x^2).
- ✔ Parallelogram: diagonals bisect each other — very frequent 3–5 mark question.
- ✘ Area of Triangle formula is DELETED from 2025–26 syllabus.
- ✔ Expected marks: 6–8 marks in Board Exam.

"Practice makes perfect. Solve PYQs to master your Board Exam!"

Best Wishes for Your Board Exam!

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