UNIQUE STUDY POINT

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PRACTICE PAPER 03 - CHAPTER 07 COORDINATE GEOMETRY (2025-26)

Made with ❤ by Sumeet Sahu

SUBJECT: MATHEMATICS **MAX. MARKS: 40**

CLASS: X **DURATION: 1½ hrs**

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General Instructions:

1. All questions are compulsory.
2. This question paper contains 20 questions divided into five Sections A, B, C, D and E.
3. Section A comprises of 10 MCQs of 1 mark each. Section B comprises of 4 questions of 2 marks each. Section C comprises of 3 questions of 3 marks each. Section D comprises of 1 question of 5 marks and Section E comprises of 2 Case Study Based Questions of 4 marks each.
4. There is no overall choice.
5. Use of Calculators is not permitted.

SECTION – A

Questions 1 to 10 carry 1 mark each.

1. The reflection of point (3, 4) in x-axis is:
(a) (–3, 4) (b) (3, –4) (c) (–3, –4) (d) (4, 3)

2. If distance between (3, y) and (–1, 2) is 5, then positive value of y is:
(a) 2 (b) 3 (c) 5 (d) 4

3. Point on perpendicular bisector of line joining A(–2, –5) and B(2, 5) is:
(a) (0, 0) (b) (0, 2) (c) (2, 0) (d) (–2, 0)

4. If points (h, 0), (a, b) and (0, k) lie on a line, then a/h + b/k equals:
(a) 0 (b) 1 (c) 2 (d) –1

5. If C divides line joining A(3, 4) and B(–3, –2) in ratio k:1 and C lies on y-axis, then k is:
(a) 1 (b) 2 (c) 3 (d) 1/2

6. Point on x-axis equidistant from A(–1, 0) and B(5, 0) is:
(a) (0, 2) (b) (2, 0) (c) (3, 0) (d) (0, 3)

7. AOBC is rectangle with A(0, 3), O(0, 0), B(5, 0). Length of diagonal is:
(a) 5 (b) 3 (c) √34 (d) 4

8. Ratio in which x-axis divides line joining (2, –3) and (5, 6) is:
(a) 1 : 2 (b) 2 : 1 (c) 1 : 3 (d) 3 : 1

In questions 9 and 10, choose the correct answer:
(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not the correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

9. **Assertion (A):** Point (3, 0) lies in first quadrant.
Reason (R): Point (3, 0) lies on x-axis.

10. **Assertion (A):** If midpoints of sides AB and AC of △ABC are D(3, 5) and E(–3, –3), then BC = 20.

Reason (R): Line joining midpoints of two sides is parallel to third side and half of it.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Find coordinates of point dividing line joining (–1, 7) and (4, –3) in ratio 2:3.

12. If (1, p/3) is mid-point of line joining (2, 0) and (0, 2/9), find p.

13. Find m if points (5, 1), (–2, –3) and (8, 2m) are collinear.

14. Find the area of triangle formed by points (a, b+c), (a, b–c) and (–a, c).

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. If A(6, 1), B(8, 2), C(9, 4) and D(p, 3) are vertices of parallelogram, find p.

16. Find coordinates of vertices of triangle whose mid-points are (0, 1/2), (1/2, 1/2) and (1/2, 0).

17. Show that A(1, 1), B(7, 3), C(12, 6), D(6, 4) form a trapezium.
OR
If two vertices of triangle are (–2, 3), (5, –1) and centroid is (2, –1), find third vertex.

SECTION – D

Question 18 carries 5 marks.

18. Base BC of equilateral △ABC lies on y-axis. C is (0, –3). Origin is mid-point of base. Find coordinates of A, B and another point D such that ABCD is rhombus.
OR
Show that (–3, 2), (–5, –5), (2, –3), (4, 4) are vertices of rhombus. Find its area.

SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. DRONE DELIVERY
Drone starts from W(0, 0). Delivers to A(–4, 3), B(5, 2), C(2, –6). Units in km.

(i) Find distance W to A. (1 mark)
(ii) Charging station S at midpoint of BC. Find coordinates. (1 mark)
(iii) Find total distance W→A→B→C. (2 marks)
OR
Point D divides AC in 1:2. Find coordinates and verify quadrant. (2 marks)

20. GARDEN DESIGN
Triangular garden with P(2, 1), Q(6, 5), R(8, 1).

(i) Find length of PQ. (1 mark)
(ii)(a) Find centroid for fountain. (1 mark)
OR
(ii)(b) Find midpoint of QR for statue. (1 mark)
(iii) Check if angle P is right angle. (2 marks)

DETAILED ANSWER KEY

SECTION A – ANSWERS

1. (b) (3, –4)

Reflection in x-axis: (x, y) → (x, –y)

2. (c) 5

$\sqrt{[16 + (y–2)^2]} = 5 \rightarrow (y–2)^2 = 9 \rightarrow y = 5$ or –1

3. (a) (0, 0)

Origin equidistant from both points

4. (b) 1

Collinearity gives a/h + b/k = 1

5. (a) 1

x = 0: (k×(–3) + 3)/(k+1) = 0 → k = 1

6. (b) (2, 0)

Midpoint of A and B

7. (c) √34

C(5, 3). Diagonal = √(25+9) = √34

8. (a) 1 : 2

y = 0: (k×6 – 3)/(k+1) = 0 → k = 1/2 → ratio 1:2

9. (d)

A false (point on axis, not in quadrant), R true

10. (a)

DE = 10. By midpoint theorem: BC = 2×10 = 20. Both true, R explains A

SECTION B – ANSWERS

11. (1, 3)

((2×4+3×(–1))/5, (2×(–3)+3×7)/5) = (1, 3)

12. p = 1/3

p/3 = (0+2/9)/2 = 1/9 → p = 1/3

13. m = 19/14

Using collinearity condition

14. 2ac sq. units

Area = (1/2)|–4ac| = 2ac

SECTION C – ANSWERS

15. p = 7

Diagonals bisect: (15/2, 5/2) = ((8+p)/2, 5/2) → p = 7

16. (1, 0), (0, 0), (0, 1)

Solving midpoint equations gives vertices

17. AB ∥ CD (both slope 1/3) → Trapezium

One pair parallel → trapezium

OR: Third vertex (3, –5)

Using centroid formula

SECTION D – ANSWER

18. A(3√3, 0), B(0, 3), D(–3√3, 0)

BC = 6. Height = 3√3. For rhombus, opposite sides equal

OR: All sides = √53. Area = 45 sq. units

Area = (1/2)×5√2×9√2 = 45

SECTION E – ANSWERS

19.

(i) WA = 5 km
(ii) S = (3.5, –2)
(iii) Total ≈ 22.6 km
OR: D(–2, 0), on negative x-axis

20.

(i) PQ = 4√2 units
(ii)(a) Centroid = (16/3, 7/3)
OR (ii)(b) Midpoint = (7, 3)
(iii) Not right-angled at P