

★ Class 9 Maths Chapter 1 – Important Questions

Orienting Yourself: The Use of Coordinates

These questions are prepared according to the **new Ganita Manjari 2026–27 Chapter 1**. The chapter focuses on the 2-D Cartesian coordinate system, locating points, distance between two points, midpoint, straight-line checks, and coordinate-based geometric applications.

● A. Very Short Answer Questions

1. What is a coordinate system?
 2. What is a Cartesian plane?
 3. What are the two coordinate axes?
 4. What is the origin of a coordinate plane?
 5. Write the coordinates of the origin.
 6. What is meant by an ordered pair?
 7. In the ordered pair (x, y) , which coordinate is written first?
 8. What is the x-coordinate of a point called?
 9. What is the y-coordinate of a point called?
 10. What are the coordinates of a point lying on the x-axis?
 11. What are the coordinates of a point lying on the y-axis?
 12. What are the four parts of a Cartesian plane called?
 13. What are the signs of the coordinates of a point in Quadrant I?
 14. What are the signs of the coordinates of a point in Quadrant II?
 15. What are the signs of the coordinates of a point in Quadrant III?
 16. What are the signs of the coordinates of a point in Quadrant IV?
 17. In which quadrant does the point $(5, 3)$ lie?
 18. In which quadrant does the point $(-4, 6)$ lie?
 19. In which quadrant does the point $(-2, -7)$ lie?
 20. In which quadrant does the point $(8, -3)$ lie?
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● B. Short Answer Questions

21. Explain how the position of a point is represented using an ordered pair.
 22. Explain the difference between the x-coordinate and y-coordinate of a point.
 23. Explain why the origin is represented by $(0, 0)$.
 24. How can you determine the quadrant of a point from its coordinates?
 25. What happens to the coordinates of a point when it is reflected in the x-axis?
 26. What happens to the coordinates of a point when it is reflected in the y-axis?
 27. Explain how to locate a point $(4, -3)$ on the Cartesian plane.
 28. Find the distance between two points having the same y-coordinate.
 29. Find the distance between two points having the same x-coordinate.
 30. Explain how coordinates can be used to represent the floor plan of a room.
 31. Why are coordinates useful for locating objects or places?
 32. Explain how the coordinate system can be used in maps and navigation.
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C. Distance Between Two Points

33. State the distance formula for two points $P(x_1, y_1)$ and $Q(x_2, y_2)$.
 34. Find the distance between $(2, 3)$ and $(7, 3)$.
 35. Find the distance between $(-2, 4)$ and $(-2, -3)$.
 36. Find the distance between $(1, 2)$ and $(4, 6)$.
 37. Find the distance between $(-3, 5)$ and $(5, -1)$.
 38. Find the distance between $(-4, -2)$ and $(2, 6)$.
 39. Find the distance between $(0, 0)$ and $(6, 8)$.
 40. The points $A(2, 5)$ and $B(x, 5)$ are 7 units apart. Find the possible values of x .
 41. The points $P(4, y)$ and $Q(4, -2)$ are 9 units apart. Find the possible values of y .
 42. Show that the distance between two points can be obtained using the Pythagorean theorem.
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D. Midpoint Questions

43. State the midpoint formula for the line segment joining $A(x_1, y_1)$ and $B(x_2, y_2)$.
44. Find the midpoint of the line segment joining $(2, 4)$ and $(8, 10)$.
45. Find the midpoint of $(-3, 5)$ and $(7, -1)$.
46. Find the midpoint of $(-6, -4)$ and $(2, 8)$.
47. The endpoints of a line segment are $(3, 7)$ and $(9, 1)$. Find its midpoint.

48. The midpoint of a line segment is $(4, 5)$ and one endpoint is $(2, 3)$. Find the other endpoint.
49. Find the midpoint of the line segment joining $(-5, 2)$ and $(5, -2)$.
50. Explain why the midpoint divides a line segment into two equal parts.
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E. Straight-Line and Geometric Application Questions

51. How can coordinates be used to determine whether three points lie on a straight line?
52. Check whether the points $(1, 2)$, $(3, 4)$ and $(5, 6)$ lie on a straight line.
53. Check whether the points $(2, 1)$, $(4, 5)$ and $(6, 8)$ are collinear.
54. Using coordinates, determine whether the triangle with vertices $(0, 0)$, $(3, 0)$ and $(0, 4)$ is right-angled.
55. Find the lengths of the three sides of the triangle with vertices $(1, 1)$, $(5, 1)$ and $(1, 4)$. Hence identify whether it is a right-angled triangle.
56. The vertices of a quadrilateral are $(1, 1)$, $(6, 1)$, $(6, 4)$ and $(1, 4)$. Find its side lengths and identify the shape.
57. A rectangular floor plan has corners represented by $(0, 0)$, $(8, 0)$, $(8, 5)$ and $(0, 5)$. Find its length, breadth and perimeter.
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F. Case-Based / Application-Based Questions

58. A Room on a Coordinate Grid

A room is represented on a coordinate grid. Its corners are $O(0, 0)$, $A(10, 0)$, $B(10, 6)$ and $C(0, 6)$.

Answer the following:

- (a) What is the length of the room?
- (b) What is its breadth?
- (c) Find the distance between O and B .
- (d) Find the midpoint of OB .
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59. Planning a Park

A rectangular park has vertices

$A(-2, 1)$, $B(6, 1)$, $C(6, 5)$ and $D(-2, 5)$.

- (a) Find the length and breadth of the park.
 - (b) Find the perimeter.
 - (c) Find the midpoint of AC .
 - (d) Find the diagonal length AC .
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60. Checking a Right-Angled Triangle

Three points are given as

$A(0, 0)$, $B(6, 0)$ and $C(0, 8)$.

- (a) Find AB , BC and CA .
 - (b) Verify whether the triangle is right-angled.
 - (c) Identify the right angle.
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★ G. Higher-Order Thinking Questions

- 61. A point has coordinates (x, y) and lies in Quadrant III. What can you say about the signs of x and y ?
 - 62. A point lies on the x -axis and is 7 units from the origin. What are its possible coordinates?
 - 63. A point lies on the y -axis and is 5 units from the origin. What are its possible coordinates?
 - 64. Find a point on the x -axis that is equidistant from $(2, 3)$ and $(6, 3)$.
 - 65. Find the point on the y -axis that is equidistant from $(3, 2)$ and $(3, -4)$.
 - 66. Two points are 10 units apart and have the same x -coordinate. If one point is $(4, 3)$, find the possible coordinates of the other point.
 - 67. The midpoint of a line segment is $(5, 4)$. One endpoint is $(2, 1)$. Find the other endpoint.
 - 68. A triangle has vertices $(0, 0)$, $(4, 0)$ and $(0, 3)$. Without measuring the figure, determine whether it is a right-angled triangle.
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H. Important Exam Questions

These are the questions I would **definitely include in your Important Questions PDF**:

1. Explain the Cartesian coordinate system with a labelled diagram.
2. Explain the four quadrants and the signs of coordinates in each quadrant.
3. Plot given points on a Cartesian plane and identify their quadrants.
4. Find the distance between two given points using the distance formula.
5. Derive/use the distance formula using the Pythagorean theorem.
6. Find the midpoint of a line segment using the midpoint formula.
7. Find an unknown endpoint when the midpoint and one endpoint are given.
8. Determine whether three given points are collinear using coordinates.
9. Check whether a triangle is right-angled using coordinates.
10. Solve a real-life floor-plan problem using coordinates.
11. Solve a rectangular park/room problem using coordinates.
12. Find distances and midpoints from a given coordinate diagram.

Class 9 Maths Chapter 1 – Answer Key

Orienting Yourself: The Use of Coordinates

A. Very Short Answer

1. A system used to locate a point using numbers/coordinates.
2. A plane formed by two perpendicular axes, the x-axis and y-axis.
3. x-axis and y-axis.
4. The point where the two axes intersect.
5. **(0, 0)**
6. A pair of numbers **(x, y)** used to locate a point.
7. **x-coordinate**
8. **Abcissa**
9. **Ordinate**
10. **(x, 0)**
11. **(0, y)**
12. **Four quadrants**
13. **(+, +)**
14. **(-, +)**
15. **(-, -)**
16. **(+, -)**
17. **Quadrant I**
18. **Quadrant II**
19. **Quadrant III**
20. **Quadrant IV**

B. Short Answer

21. A point is represented by an ordered pair (x, y) , where x gives its horizontal position and y gives its vertical position.
22. The **x-coordinate** gives the horizontal position, while the **y-coordinate** gives the vertical position.
23. At the origin, both coordinates are zero. Therefore, the origin is **(0, 0)**.
24. Check the signs of x and y :
- $(+, +) \rightarrow \text{I}$
 - $(-, +) \rightarrow \text{II}$
 - $(-, -) \rightarrow \text{III}$
 - $(+, -) \rightarrow \text{IV}$
25. Reflection in the x-axis:
 $(x, y) \rightarrow (x, -y)$
26. Reflection in the y-axis:
 $(x, y) \rightarrow (-x, y)$
27. $(4, -3)$ is located **4 units right** of the y-axis and **3 units below** the x-axis. It lies in **Quadrant IV**.
28. For points with the same y-coordinate:
Distance = $|x_2 - x_1|$
29. For points with the same x-coordinate:
Distance = $|y_2 - y_1|$
30. Coordinates can represent the positions of walls, doors, furniture and other features of a floor plan.
31. Coordinates provide a precise numerical method for locating positions.
32. Maps and navigation systems use coordinates to specify the exact position of places.
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C. Distance Between Two Points

33.

$$\text{Distance} = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$$

34. $(2, 3)$ and $(7, 3)$

Distance = 5 units

35. $(-2, 4)$ and $(-2, -3)$

Distance = 7 units

36. $(1, 2)$ and $(4, 6)$

Distance = 5 units

37. $(-3, 5)$ and $(5, -1)$

Distance = 10 units

38. $(-4, -2)$ and $(2, 6)$

Distance = 10 units

39. $(0, 0)$ and $(6, 8)$

Distance = 10 units

40. $A(2, 5)$ and $B(x, 5)$ are 7 units apart.

$x = 9$ or -5

41. $P(4, y)$ and $Q(4, -2)$ are 9 units apart.

$y = 7$ or -11

42. Draw horizontal and vertical segments between the two points to form a right triangle.

Applying Pythagoras' theorem gives:

$$PQ^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

Hence,

$$PQ = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$$

D. Midpoint Questions

43.

$$M = ((x_1 + x_2)/2, (y_1 + y_2)/2)$$

44. $(2, 4)$ and $(8, 10)$

Midpoint = $(5, 7)$

45. $(-3, 5)$ and $(7, -1)$

Midpoint = $(2, 2)$

46. $(-6, -4)$ and $(2, 8)$

Midpoint = $(-2, 2)$

47. $(3, 7)$ and $(9, 1)$

Midpoint = $(6, 4)$

48. Midpoint $(4, 5)$, one endpoint $(2, 3)$

Other endpoint = $(6, 7)$

49. $(-5, 2)$ and $(5, -2)$

Midpoint = $(0, 0)$

50. The midpoint is obtained by taking the average of the x-coordinates and the average of the y-coordinates. Therefore, it divides the line segment into **two equal parts**.
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E. Straight-Line & Geometric Applications

51. Three points are collinear if they lie on the **same straight line**. This can be checked using distances or coordinate relationships.
52. $(1, 2)$, $(3, 4)$, $(5, 6)$
Yes, the three points are collinear.
53. $(2, 1)$, $(4, 5)$, $(6, 8)$
No, the points are not collinear.
54. $(0, 0)$, $(3, 0)$, $(0, 4)$
Side lengths: **3, 4 and 5**
Therefore, it is a **right-angled triangle**.
55. $(1, 1)$, $(5, 1)$, $(1, 4)$
Side lengths: **4, 3 and 5**
Therefore, it is a **right-angled triangle**.
56. $(1, 1)$, $(6, 1)$, $(6, 4)$, $(1, 4)$
Length = **5 units**
Breadth = **3 units**
Shape = **Rectangle**
Perimeter = **16 units**
57. Rectangle with corners $(0, 0)$, $(8, 0)$, $(8, 5)$, $(0, 5)$
Length = **8 units**
Breadth = **5 units**
Perimeter = **26 units**
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F. Case-Based / Application Questions

58. Room

$O(0, 0)$, $A(10, 0)$, $B(10, 6)$, $C(0, 6)$

- (a) Length = **10 units**
(b) Breadth = **6 units**
(c) $OB = \sqrt{136} = 2\sqrt{34}$ units
(d) Midpoint of $OB = (5,3)$
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59. Park

$A(-2,1)$, $B(6,1)$, $C(6,5)$, $D(-2,5)$

- (a) Length = **8 units**, breadth = **4 units**
(b) Perimeter = **24 units**
(c) Midpoint of $AC = (2,3)$
(d) Diagonal $AC = \sqrt{80} = 4\sqrt{5}$ units
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60. Right-Angled Triangle

$A(0,0)$, $B(6,0)$, $C(0,8)$

(a)

- $AB = 6$ units
- $AC = 8$ units
- $BC = 10$ units

(b) Yes, it is a **right-angled triangle**.

(c) Right angle is at **$A(0,0)$** .

G. Higher-Order Thinking

61. Quadrant III $\rightarrow x < 0$ and $y < 0$
62. Points on x-axis 7 units from origin:
 $(7,0)$ and $(-7,0)$
63. Points on y-axis 5 units from origin:
 $(0,5)$ and $(0,-5)$
64. Point = **$(4,0)$**
65. Point = **$(0,-1)$**

66. Possible points:
(4,13) and **(4,-7)**
67. Other endpoint = **(8,7)**
68. The triangle is **right-angled at (0,0)**.
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H. Important Exam Questions — Quick Answer Key

1. **Cartesian plane:** Two perpendicular axes intersecting at the origin.
2. **Quadrant signs:** I **(+, +)**, II **(-, +)**, III **(-, -)**, IV **(+, -)**.
3. Plot points → determine position and quadrant from signs.
4. **Distance formula:** $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
5. Distance formula follows from **Pythagoras' theorem**.
6. **Midpoint:** $((x_1 + x_2)/2, (y_1 + y_2)/2)$
7. Unknown endpoint → use the midpoint formula and solve for the missing coordinates.
8. Collinear points → lie on the **same straight line**.
9. Right triangle → verify **Pythagorean relationship**.
10. Floor-plan problems → use coordinates to calculate distances and positions.
11. Park/room problems → calculate side lengths, perimeter and diagonals.
12. Coordinate diagram → identify coordinates, distances and midpoints.