

CLASS 10

MATHS

NCERT SOLUTIONS

NCERT Solutions for Class 10 Maths Chapter 7: Coordinate Geometry – Free PDF Download

Chapter 7 — Coordinate Geometry in the current 2026-27 CBSE Class 10 Maths syllabus now spans two exercises (7.1 Distance Formula, 7.2 Section Formula) after the 2023 rationalisation removed the older Exercise 7.3 (Area of a Triangle) and Exercise 7.4 (Optional). Below are complete, original, step-by-step solution...

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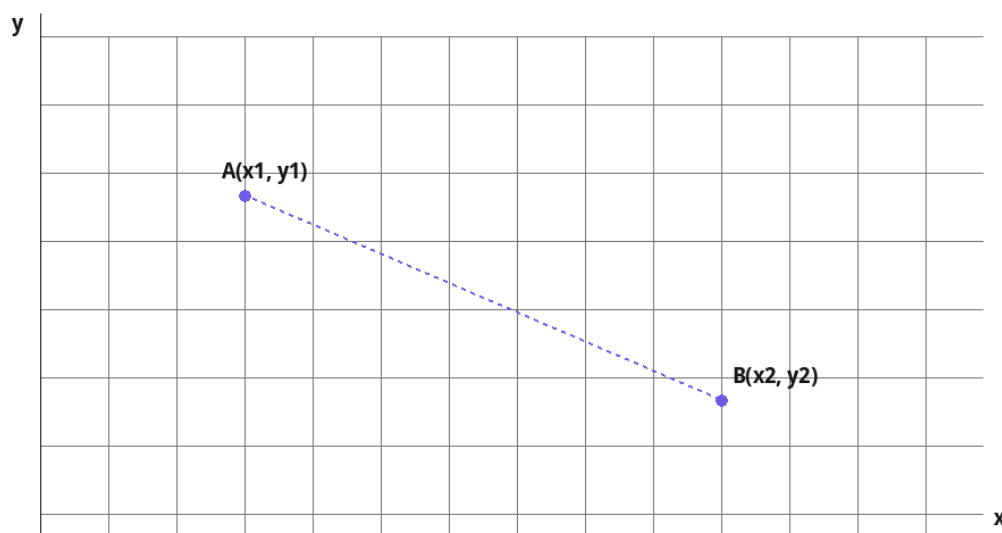
NCERT Solutions for Class 10 Maths Chapter 7: Coordinate Geometry

Why This Chapter Matters for Boards

CBSE Exam Weightage

Class 10 Mathematics Chapter 7 – Notes and Extra Questions

Chapter 7 — Coordinate Geometry in the current 2026-27 CBSE Class 10 Maths syllabus now spans two exercises (7.1 Distance Formula, 7.2 Section Formula) after the 2023 rationalisation removed the older Exercise 7.3 (Area of a Triangle) and Exercise 7.4 (Optional). Below are complete, original, step-by-step solutions to both exercises.



Distance formula: $AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$. Section-formula points divide AB in a given ratio.

Reference figure — two points on the Cartesian plane

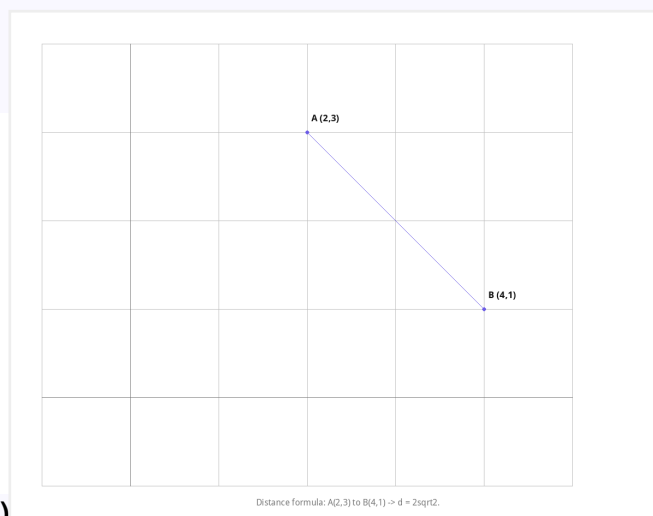
NCERT Solutions for Class 10 Maths Chapter 7: Coordinate Geometry

Exercise 7.1 — Distance Formula

Q1. Find the distance between the following pairs of points: (i) (2,3),(4,1) (ii) (-5,7),(-1,3) (iii) (a,b),(-a,-b)

(i) $d = \sqrt{(4-2)^2 + (1-3)^2} = \sqrt{4+4} = 2\sqrt{2}$

(ii) $d = \sqrt{(-1+5)^2 + (3-7)^2} = \sqrt{16+16} = 4\sqrt{2}$



Distance formula: $A(2,3)$ to $B(4,1) \rightarrow d = 2\sqrt{2}$.

(iii) $d = \sqrt{(-a-a)^2 + (-b-b)^2} = \sqrt{4a^2 + 4b^2} = 2\sqrt{a^2 + b^2}$

Q2. Find the distance between the points (0,0) and (36,15). Can you find the distance between towns A and B if A is at (0,0) and B is at (36,15) on a coordinate map?

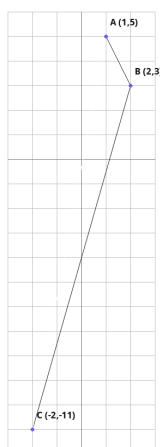
$d = \sqrt{(36^2 + 15^2)} = \sqrt{(1296 + 225)} = \sqrt{1521} = 39$ units (towns A and B are 39 units apart).



A(0,0) to B(36,15) $\rightarrow d = 39$ units.

Q3. Determine if the points (1,5), (2,3) and (-2,-11) are collinear.

Using the area-of-triangle test: $\text{Area} = \frac{1}{2} |1(3 - (-11)) + 2(-11 - 5) + (-2)(5 - 3)| = \frac{1}{2} |14 - 32 - 4| = \frac{1}{2} |-22| = 11 \neq 0$. Since the

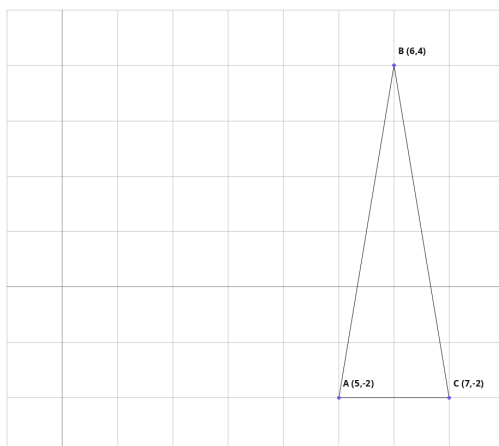


Triangle ABC has nonzero area $\rightarrow A, B, C$ are NOT collinear.

area is not zero, the points are **not collinear**.

Q4. Check whether (5,-2), (6,4) and (7,-2) are the vertices of an isosceles triangle.

$AB = \sqrt{((6-5)^2 + (4+2)^2)} = \sqrt{37}$; $BC = \sqrt{((7-6)^2 + (-2-4)^2)} = \sqrt{37}$; $AC = \sqrt{((7-5)^2 + (-2+2)^2)} = 2$. Since $AB = BC$, yes, it is an

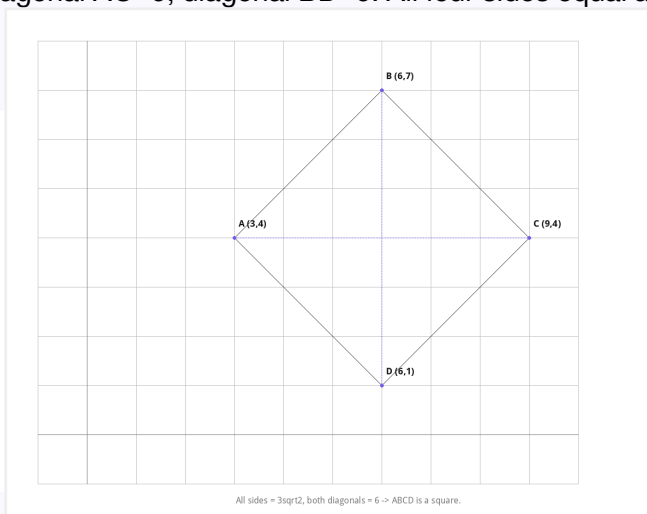


$AB = BC = \sqrt{37} \rightarrow$ isosceles triangle ABC.

isosceles triangle.

Q5. In a classroom, Champa put chart paper vertices A(3,4), B(6,7), C(9,4), D(6,1). Is ABCD a square?

$AB=CD=BC=DA=\sqrt{18}=3\sqrt{2}$ for every side; diagonal $AC=6$, diagonal $BD=6$. All four sides equal and both



All sides = $3\sqrt{2}$, both diagonals = 6 $\rightarrow$ ABCD is a square.

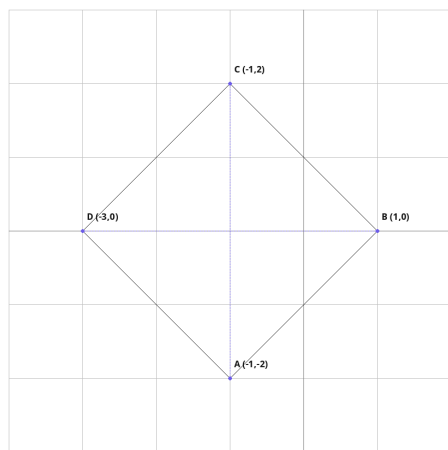
diagonals equal $\Rightarrow$ **yes, ABCD is a square.**

Q6. Name the type of quadrilateral formed, if any, by the following points, and give reasons: (i) (-1,-2),(1,0),(-1,2),(-3,0) (ii) (-3,5),(3,1),(0,3),(-1,-4) (iii) (4,5),(7,6),(4,3),(1,2)

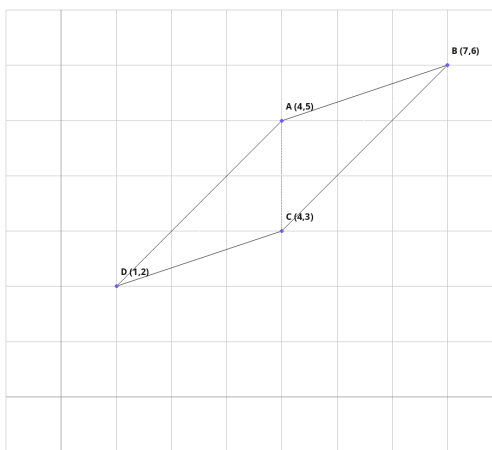
(i) All four sides work out equal and the diagonals are also equal $\Rightarrow$ **a square.**

(ii) Checking the side lengths and diagonals shows the four points do not close into a proper quadrilateral $\Rightarrow$ **no quadrilateral is formed.**

(iii) Opposite sides work out equal in pairs but the diagonals are unequal $\Rightarrow$ **a parallelogram.**



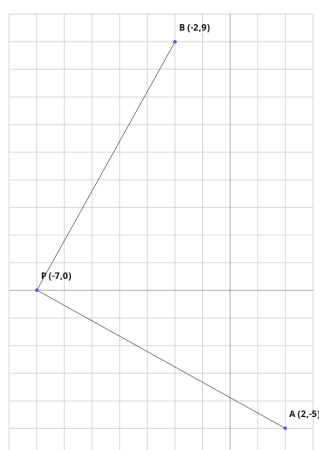
All sides & both diagonals equal $\rightarrow$ a square.



Opposite sides equal, diagonals unequal $\rightarrow$ a parallelogram.

Q7. Find the point on the x-axis which is equidistant from (2,-5) and (-2,9).

Let the point be $(x,0)$. $(x-2)^2+25=(x+2)^2+81 \Rightarrow -8x=56 \Rightarrow x=-7$, so the point is **(-7,0).**



P(-7,0) on the x-axis is equidistant from A and B.

Q8. Find the values of y for which the distance between $P(2, -3)$ and $Q(10, y)$ is 10 units.

$$64 + (y+3)^2 = 100 \Rightarrow (y+3)^2 = 36 \Rightarrow y = 3 \text{ or } y = -9.$$

Q9. If $Q(0, 1)$ is equidistant from $P(5, -3)$ and $R(x, 6)$, find x , QR and PR .

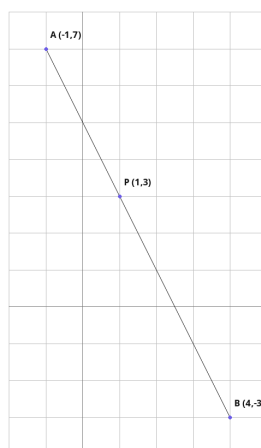
$$QP^2 = 41. \text{ Setting } QR^2 = x^2 + 25 = 41 \Rightarrow x = 4 \text{ or } x = -4. \text{ } QR = \sqrt{41}. \text{ When } x = 4: PR = \sqrt{82}. \text{ When } x = -4: PR = 9\sqrt{2}.$$

Q10. Find a relation between x and y such that (x, y) is equidistant from $(3, 6)$ and $(-3, 4)$.

$$(x-3)^2 + (y-6)^2 = (x+3)^2 + (y-4)^2 \Rightarrow 3x + y - 5 = 0.$$

Exercise 7.2 — Section Formula

Q1. Find the coordinates of the point which divides the join of $(-1, 7)$ and $(4, -3)$ in the ratio 2:3.



P divides AB in ratio 2:3 $\Rightarrow P(1, 3)$.

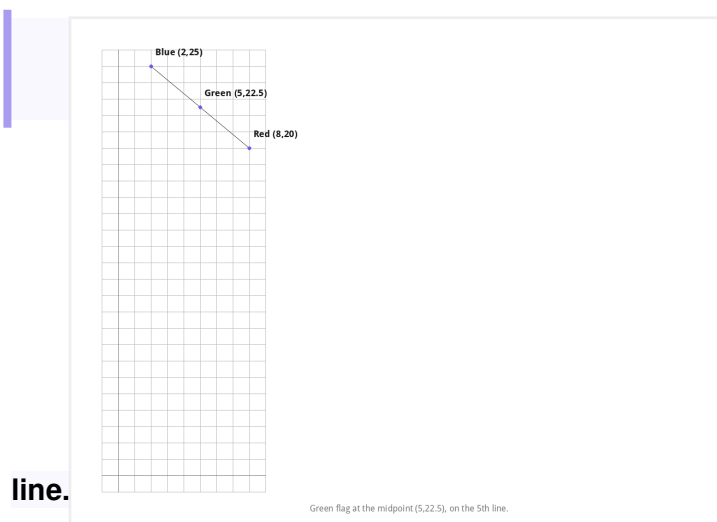
$$x = (2 \times 4 + 3 \times (-1)) / 5 = 1; y = (2 \times (-3) + 3 \times 7) / 5 = 3 \Rightarrow (1, 3).$$

Q2. Find the coordinates of the points of trisection of the segment joining $(4, -1)$ and $(-2, -3)$.

Ratio 1:2 point: $(2, -5/3)$. Ratio 2:1 point: $(0, -7/3)$.

Q3. Niharika runs $1/4$ th of a 100 m dash on the 2nd line and posts a blue flag, Preet runs $1/5$ th on the 8th line and posts a red flag. Find the distance between the flags, and where Rashmi should post a green flag exactly halfway between them.

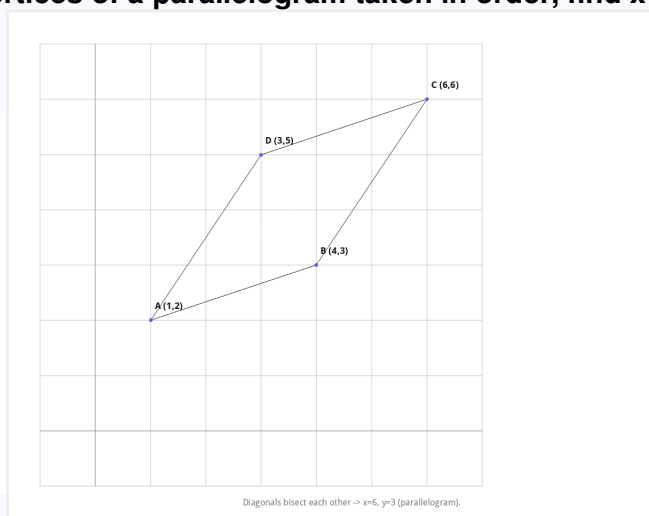
Blue flag $(2, 25)$, red flag $(8, 20)$. Distance $= \sqrt{(36+25)} = \sqrt{61}$ m. Green flag (midpoint): $(5, 22.5)$ — on the 5th



Q4. Find the ratio in which the segment joining $(-3, 10)$ and $(6, -8)$ is divided by $(-1, 6)$.
 Let ratio be $k:1$. $6k - 3 = -k - 1 \Rightarrow k = 2/7$, i.e. ratio $2:7$.

Q5. Find the ratio in which the segment joining $A(1, -5)$ and $B(-4, 5)$ is divided by the x-axis, and the point of division.
 Ratio $1:1$, point $(-3/2, 0)$.

Q6. If $(1, 2)$, $(4, y)$, $(x, 6)$ and $(3, 5)$ are vertices of a parallelogram taken in order, find x and y .

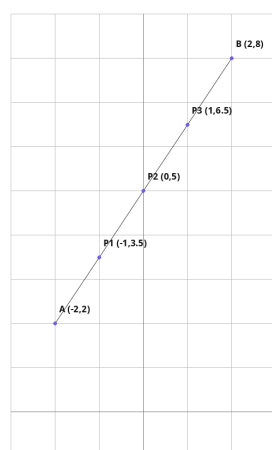


Diagonals bisect each other $\Rightarrow x=6, y=3$.

Q7. Find A, if AB is a diameter of a circle centred at $(2, -3)$ and B is $(1, 4)$.
 Centre = midpoint of AB $\Rightarrow A = (3, -10)$.

Q8. If $A(-2, -2)$ and $B(2, -4)$, find P on AB such that $AP = (3/7)AB$.
 $AP:PB = 3:4 \Rightarrow P = (-2/7, -20/7)$.

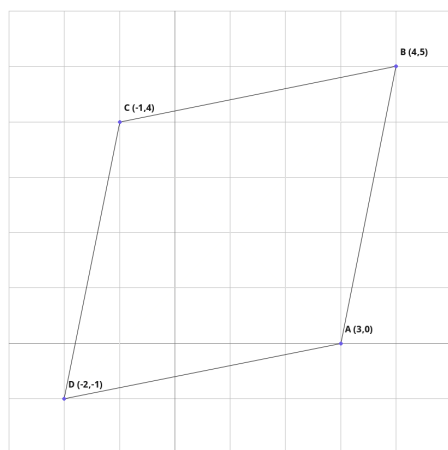
Q9. Find the coordinates of the points which divide the segment joining $A(-2, 2)$ and $B(2, 8)$ into four equal parts.



AB split into 4 equal parts by 3 points.

$(-1, 7/2), (0, 5), (1, 13/2).$

Q10. Find the area of a rhombus with vertices $(3,0), (4,5), (-1,4), (-2,-1)$ taken in order.
Diagonals $4\sqrt{2}$ and $6\sqrt{2} \Rightarrow \text{Area} = \frac{1}{2} \times 4\sqrt{2} \times 6\sqrt{2} = 24$ sq units.



Diagonals $4\sqrt{2}$ and $6\sqrt{2} \Rightarrow$ rhombus area = 24 sq units.

Why This Chapter Matters for Boards

Coordinate Geometry usually contributes 6-8 marks to the CBSE board paper and often combines with Triangles (similar-triangle proofs using coordinates) and Trigonometry. The distance and section formulas reappear directly in Chapter 10 (Circles) and several board case-study questions.

CBSE Exam Weightage

This chapter falls under **Unit III: Coordinate Geometry** in the CBSE Class 10 Maths board exam syllabus. This unit typically carries around **6 marks (7.5%)** of the 80-mark theory paper, based on CBSE's published unit-wise weightage (Question Paper Design). CBSE sets weightage at the unit level rather than chapter-by-chapter, so the exact share from this specific chapter can vary a little between years and sample papers.

Class 10 Mathematics Chapter 7 – Notes and Extra Questions

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