Coordinate Geometry Class 10 Important Questions

10 questions · 27 marks · no calculator · step-marked answers

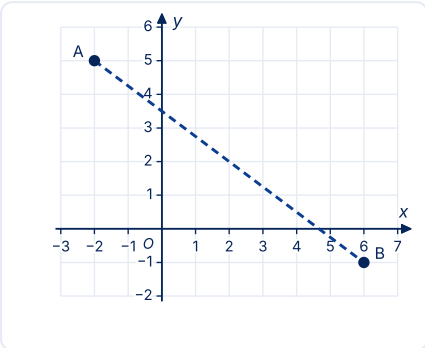
Name _____ Date _____ Score / 27

- Original questions in the board paper's question types, from 1-mark MCQs to a case study. Try every question before you look at the answers.
- No calculator: as in the CBSE board exam, everything works by hand.
- Worked answers with step marks for 5 questions start after the questions. The other 5 open free on the chapter page with a free account (no card): the link is next to each one.
- Online, with more practice: cbsemathrevision.com/class-10/coordinate-geometry

Section A · Multiple choice and assertion–reason (1 mark each)

1. **1 mark · Distance formula**

How far apart are the points $A(-2, 5)$ and $B(6, -1)$?



A(−2, 5) and B(6, −1)

(a) 14 units

(b) 10 units

(c) $2\sqrt{10}$ units

(d) $\sqrt{68}$ units

2. **1 mark · Mid-point formula**

The mid-point of the segment joining $(2, -6)$ and $(-4, 8)$ is

(a) $(3, -7)$

(b) $(-2, 2)$

(c) $(1, -1)$

(d) $(-1, 1)$

3. 1 mark · Distance formula

In the following question, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

Assertion (A): The point $(0, -7)$ lies on the y-axis.

Reason (R): Every point on the x-axis has y-coordinate 0.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

Section B · Short answer (2 marks each)

4. 2 marks · Section formula

In what ratio does the y-axis divide the segment joining $A(-4, 7)$ and $B(6, -3)$? Find the point of division.

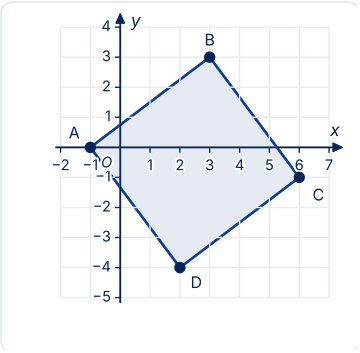
5. 2 marks · Distance formula

The point $P(x, -1)$ is at a distance of 5 units from $Q(2, 3)$. Find x.

Section C · Short answer (3 marks each)

6. **3 marks · Applications to geometric shapes**

Prove that the points $A(-1, 0)$, $B(3, 3)$, $C(6, -1)$ and $D(2, -4)$, taken in order, form a square.



A(−1, 0), B(3, 3), C(6, −1), D(2, −4)

7. **3 marks · Section formula**

Find the coordinates of the points of trisection of the segment joining $A(-3, 5)$ and $B(6, -4)$.

Section D · Long answer (5 marks each)

8. **5 marks · Mid-point formula**

The vertices of $\triangle ABC$ are $A(2,3)$, $B(-4,1)$ and $C(6,-5)$. (a) Find the mid-point D of BC and the length of the median AD. (b) Find the point G on AD with $AG:GD = 2:1$, and check that $G = \left(\dfrac{x_1+x_2+x_3}{3}, \dfrac{y_1+y_2+y_3}{3}\right)$.

9. **5 marks · Distance formula**

A point $P(x,y)$ is equidistant from $A(5,1)$ and $B(-1,5)$. (a) Find a relation between x and y. (b) If P also lies on the line $x+y=10$, find P and its distance from A.

Section E · Case study (4 marks)

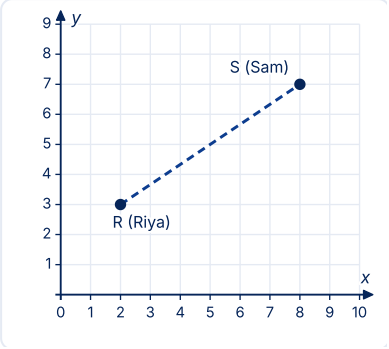
10. **4 marks · Section formula**

Sports day drill. On a sports day, positions on the field are marked on a grid with 1 unit $= 1$ m. Riya stands at $R(2, 3)$ and Sam at $S(8, 7)$.

i. Find the distance between Riya and Sam. *[1 mark]*

ii. The teacher stands exactly halfway between them. Find her position. *[1 mark]*

iii. A flag F is placed on RS so that $RF : FS = 1 : 2$. Find the coordinates of F. *[2 marks]*



Riya at R(2, 3) and Sam at S(8, 7)

Answers and worked solutions

Question 1 — 1 mark

$AB = \sqrt{(6+2)^2 + (-1-5)^2} = \sqrt{64+36} = 10$ **A1**

Correct option: (b) 10 units

Question 2 — 1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/coordinate-geometry#iq-2

Question 3 — 1 mark

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/coordinate-geometry#iq-3

Question 4 — 2 marks

Answer: $2:3$; $(0,3)$

Ratio $k:1$: $x = \dfrac{6k-4}{k+1} = 0 \Rightarrow k = \dfrac{2}{3}$, i.e. $2:3$ **M1**

$y = \dfrac{2(-3)+3(7)}{5} = 3$: the point is $(0,3)$ **A1**

Question 5 — 2 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/coordinate-geometry#iq-5

Question 6 — 3 marks

Answer: $ABCD$ is a square

$AB = \sqrt{16+9} = 5$, $BC = \sqrt{9+16} = 5$, $CD = \sqrt{16+9} = 5$, $DA = \sqrt{9+16} = 5$ **M1**

All four sides are equal **A1**

Diagonals: $AC = \sqrt{49+1} = \sqrt{50}$ and $BD = \sqrt{1+49} = \sqrt{50}$ are equal, so $ABCD$ is a square **A1**

Question 7 — 3 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/coordinate-geometry#iq-7

Question 8 — 5 marks

Answer: $D(1,-2)$, $AD = \sqrt{26}$, $G\left(\dfrac{4}{3}, -\dfrac{1}{3}\right)$

(a) $D = \left(\dfrac{-4+6}{2}, \dfrac{1-5}{2}\right) = (1,-2)$ **A1**

$AD = \sqrt{(1-2)^2 + (-2-3)^2} = \sqrt{26}$ **A1**

(b) $G = \left(\dfrac{2(1)+1(2)}{3}, \dfrac{2(-2)+1(3)}{3}\right)$ **M1**

$G = \left(\dfrac{4}{3}, -\dfrac{1}{3}\right)$ **A1**

$\left(\dfrac{2-4+6}{3}, \dfrac{3+1-5}{3}\right) = \left(\dfrac{4}{3}, -\dfrac{1}{3}\right)$: the same point **A1**

Question 9 — 5 marks

Worked answer: free with a free account (no card) on the chapter page: cbsemathrevision.com/class-10/coordinate-geometry#iq-9

Question 10 — 4 marks

i. $RS = \sqrt{6^2+4^2} = \sqrt{52} = 2\sqrt{13}\,m$ **A1**

ii. Mid-point $= \left(\dfrac{2+8}{2}, \dfrac{3+7}{2}\right) = (5,5)$ **A1**

iii. $F = \left(\dfrac{1(8)+2(2)}{3}, \dfrac{1(7)+2(3)}{3}\right)$ **M1**

$F = \left(4, \dfrac{13}{3}\right)$ **A1**

More on this chapter, free: revision notes, a Route to 95 and practice with instant feedback at cbsemathrevision.com/class-10/coordinate-geometry

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