SmartKalike

CBSE Class 10 · Maths

Coordinate Geometry

10 most probable questions for Boards 2027

Q1. 1 mark · Very short answer

How is the distance between two points on the x-axis found, and how is it found for two points on the y-axis?

Answer

On the x-axis, take the absolute difference of the x-coordinates; on the y-axis, take the absolute difference of the y-coordinates.

Q2. 2 marks · Short answer

State the distance formula for the points $P(x_1, y_1)$ and $Q(x_2, y_2)$.

Answer

For points $P(x_1, y_1)$ and $Q(x_2, y_2)$, the distance formula is $PQ = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$. The squared coordinate differences are added before taking the positive square root.

Q3. 2.5 marks · Medium answer

Write the formula for the distance of P(x, y) from the origin O(0, 0). Briefly show how it follows as a special case of the distance formula.

Answer

1. The distance between two points $P(x_1, y_1)$ and $Q(x_2, y_2)$ is given by $PQ = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$.
2. For the origin O(0, 0) and point P(x, y), take the coordinates of O as $(x_1, y_1) = (0, 0)$, and the coordinates of P as $(x_2, y_2) = (x, y)$.
3. Substitution gives $OP = \sqrt{[(x - 0)^2 + (y - 0)^2]} = \sqrt{(x^2 + y^2)}$, because distance is always non-negative.

Q4. 3 marks · Medium answer

Point A lies on the x-axis and has abscissa −5. Point B lies on the y-axis and has ordinate 4. Write the coordinates of A and B, respectively, and state which coordinate is zero for each point.

Answer

Given: A lies on the x-axis with abscissa −5; B lies on the y-axis with ordinate 4.
Formula: An x-axis point has coordinates (x, 0); a y-axis point has coordinates (0, y).
Substitution for A: A = (−5, 0); its y-coordinate is zero.
Substitution for B: B = (0, 4); its x-coordinate is zero.
Answer: A = (−5, 0) and B = (0, 4), respectively.

Q5. 4 marks · Long answer

Explain what it means for P to divide AB externally, and state how the ratio is expressed using the distances PA and PB.

Answer

A point divides AB externally when it lies on the line AB but outside the line segment AB.
1. If P lies between A and B, P divides the segment internally; an external division places P beyond one of the endpoints.
2. The distances from P to the endpoints are PA and PB. The ratio is expressed as PA:PB = m_1:m_2.
3. The values m_1 and m_2 specify the relative distances from P to A and B, respectively; the ratio compares these distances.
4. External division therefore differs from internal division by the position of P, not by the meaning of the distance ratio.
Thus, external division describes a point outside AB's segment whose distances from A and B have the stated ratio.

Q6. 5 marks · Long answer

Explain how the distance formula for two points P(x_1, y_1) and Q(x_2, y_2) is obtained by forming a right triangle from their coordinate differences and applying the Pythagorean theorem.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/coordinate-geometry

Q7. 1 mark · Very short answer

State the condition on the pairwise distances of three points that ensures they form a triangle.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/coordinate-geometry

Q8. 2 marks · Short answer

When applying the distance formula, why is the positive square root taken?

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/coordinate-geometry

Q9. 2.5 marks · Medium answer

State the distance condition that can be used to establish that three points are collinear. Explain why equality of the sum of two pairwise distances with the third is relevant.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/coordinate-geometry

Q10. 5 marks · Long answer

Explain how, after finding the three side lengths of a triangle, one can use the converse of Pythagoras' theorem to determine whether the triangle is right-angled and identify its right angle.

Full answer on SmartKalike: https://smartkalike.com/cbse/class-10/maths/coordinate-geometry

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