

CLASS 10

MATHS

EXTRA QUESTIONS

Extra Questions: Class 10 Maths Chapter 7 Coordinate Geometry

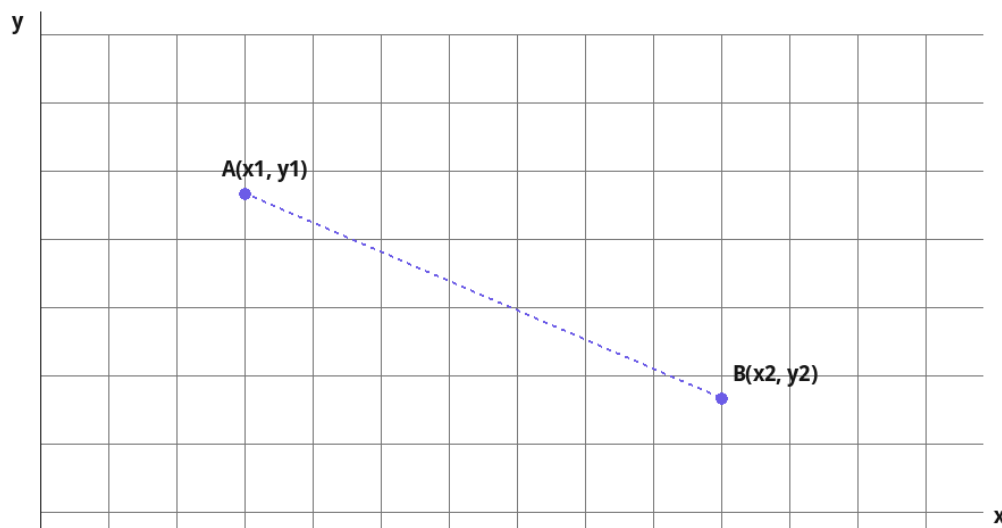
These go beyond Exercises 7.1-7.2 into genuine HOTS territory — a general proof, a reverse-engineering collinearity problem, an assertion-reason question, a fresh-numbers median/centroid problem, a reverse section-formula problem, and a quadrilateral-area problem (extending the removed Exercise 7.3/7.4 content). S...

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These go beyond Exercises 7.1-7.2 into genuine HOTS territory — a general proof, a reverse-engineering collinearity problem, an assertion-reason question, a fresh-numbers median/centroid problem, a reverse section-formula problem, and a quadrilateral-area problem (extending the removed Exercise 7.3/7.4 content). See the standard-level [Chapter 7 Solutions](#) first if you haven't already. These Class 10 Mathematics Chapter 7 important questions are handy for last-minute exam practice.



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

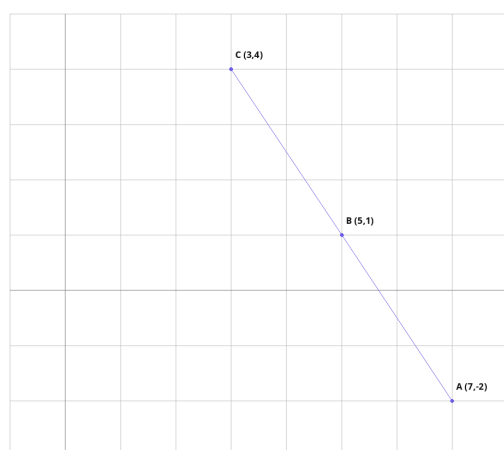
Extra Questions (HOTS Level): Coordinate Geometry (Class 10 Maths Chapter 7)

Q1. (General proof) Prove that if a point $P(x, y)$ is equidistant from two points $A(x_1, y_1)$ and $B(x_2, y_2)$, then P lies on the perpendicular bisector of AB .

$PA = PB \Rightarrow PA^2 = PB^2 \Rightarrow (x - x_1)^2 + (y - y_1)^2 = (x - x_2)^2 + (y - y_2)^2$. Expanding and cancelling the x^2, y^2 terms gives $2x(x_2 - x_1) + 2y(y_2 - y_1) = x_2^2 - x_1^2 + y_2^2 - y_1^2$ — a linear equation in x, y , i.e. a straight line. Since this is exactly the locus of every point equidistant from A and B , and the perpendicular bisector of AB is by definition that same locus, **P must lie on the perpendicular bisector of AB** . This holds for any A, B — not tied to specific numbers.

Q2. (Reverse-engineering, fresh numbers) Find the value of k such that the points $(7, -2)$, $(5, 1)$ and $(3, k)$ are collinear.

Collinear $\Rightarrow \text{area} = 0: \frac{1}{2}|7(1 - k) + 5(k + 2) + 3(-2 - 1)| = 0 \Rightarrow 7 - 7k + 5k + 10 - 9 = 0 \Rightarrow 8 - 2k = 0 \Rightarrow \mathbf{k = 4}$.



$k=4$ makes the three points collinear.

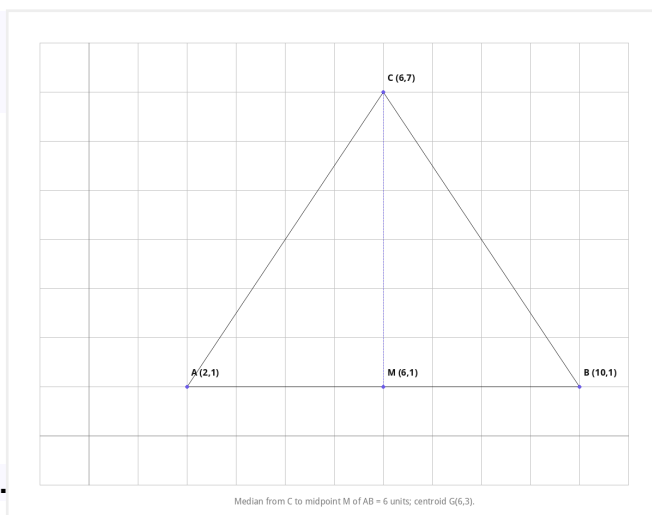
Q3. (Assertion-Reason) Assertion (A): The distance between (0,0) and (36,15) is 39 units, and a right triangle can be formed using the third point (0,15), with legs 36 and 15. **Reason (R):** In a right triangle, hypotenuse² equals the sum of the squares of the other two sides (Pythagoras theorem), and $36^2 + 15^2 = 39^2$.
 $36^2 + 15^2 = 1296 + 225 = 1521 = 39^2$, confirming the right angle at (0,15). **Both A and R are true, and R is the**



Right angle at Q(0,15): $36^2 + 15^2 = 39^2$.

correct explanation of A.

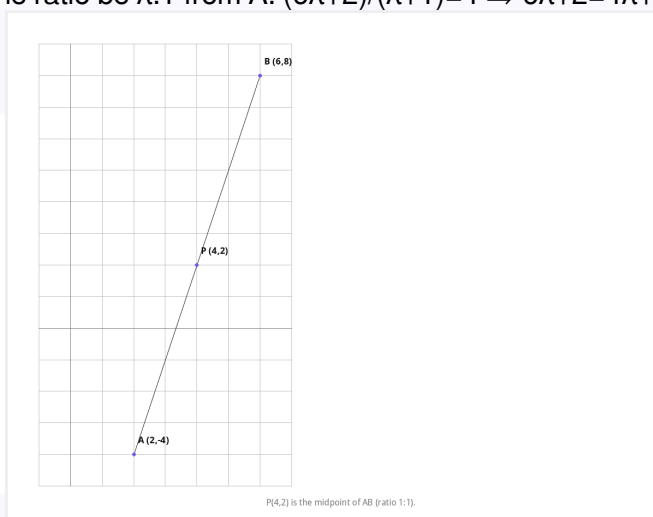
Q4. (Fresh-numbers word problem) The vertices of a triangular park are A(2,1), B(10,1) and C(6,7). Find (i) the length of the median from C to AB, and (ii) the coordinates of the centroid.
 Midpoint of AB = (6, 1). (i) Median length = $\sqrt{(6-6)^2 + (7-1)^2} = 6$ units. (ii) Centroid = $((2+10+6)/3,$



$$(1+1+7)/3 = (6, 3).$$

Q5. (Reverse section-formula problem, fresh numbers) Find the ratio in which the point (4, m) divides the segment joining A(2,-4) and B(6,8). Also find m.

Let the ratio be $\lambda:1$ from A. $(6\lambda+2)/(\lambda+1)=4 \Rightarrow 6\lambda+2=4\lambda+4 \Rightarrow \lambda=1$, so ratio 1:1 (the midpoint). $y=(8-4)/2 \Rightarrow$

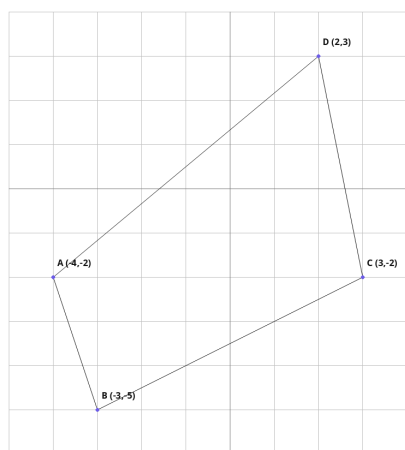


$$m=2.$$

Q6. (Quadrilateral area, extends removed Ex 7.3/7.4 content) Find the area of the quadrilateral whose vertices, taken in order, are (-4,-2), (-3,-5), (3,-2) and (2,3).

Using the shoelace extension of the triangle-area formula:

$$\text{Area} = \frac{1}{2} |x_1(y_2 - y_4) + x_2(y_3 - y_1) + x_3(y_4 - y_2) + x_4(y_1 - y_3)| = \frac{1}{2} |(-4)(-8) + (-3)(0) + 3(8) + 2(0)| = \frac{1}{2} |32 + 24| = 28 \text{ sq units.}$$



Shoelace formula $\rightarrow$ area = 28 sq units.

See also: [Revision Notes](#) / [Formulas Handbook](#)

Class 10 Mathematics Chapter 7 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 10 Mathematics Chapter 7 Solutions](#) and [Class 10 Mathematics Chapter 7 Revision Notes](#).