

Class-X

Assignment (Chapter-7)

Co-ordinate Geometry

Q1: Show that the points $A(2, -2), B, C(11, 13)$ & $D(-1,1)$ are the vertices of a rectangle.

Q2: Prove that the co-ordinates of the centroid of a ΔABC , with vertices $A(x_1, y_1), B(x_2, y_2)$ & $C(x_3, y_3)$ are given by $\frac{x_1+x_2+x_3}{3}, \frac{y_1+y_2+y_3}{3}$.

Q3: Determine the ratio in which the point $(-6, a)$ divides the join of $A(-3, -1)$ & $B(-8,9)$. Also find the value of a .

Q4: Find the point on the $x - axis$ which is equidistant from the points $(-2,5)$ & $(2, -3)$.

Q5: Prove that the points $A(0,1), B(1,4), C(4,3)$ & $D(3,0)$ are the vertices of *square*.

Q6: Determine the ratio in which the point $P(a, -2)$ divides the join of $A(-4,3)$ & $B(2, -4)$. Also find the value of a .

Q7: Determine the ratio in which the point $P(k, 2)$ divides the join of $A(-3,5)$ & $D(5,1)$. Also find the value of k .

Q8: Determine the ratio in which the point $P(b, 1)$ divides the join of $A(7, -2)$ & $D(-5,6)$. Also find the value of b .

Q9: Find the ratio in which the line segment joining the points $(6,4)$ & $(1, -7)$ is *divided* by $x - axis$.

Q10: The co-ordinates of two vertices A & B of an ΔABC are $(1,4)$ & $(5,3)$ respectively. If the co-ordinates of the centroid of ΔABC are $(3,3)$, find the co-ordinates of the third vertex C .

Q11: Find the value of m for which the points with co-ordinates $(3,5), (m, 6)$ & $\frac{1}{2}, \frac{15}{2}$ are collinear.

Q12: Prove that the points $(0,0), (5,5)$ & $(-5,5)$ are vertices of a right isosceles triangle.

Q13: If the point $P(x, y)$ is equidistant from the points $A(5,1)$ & $B(-1,5)$, prove that $3x = 2y$.

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Q14: The line joining the points $(2,1)$ & $(5,-8)$ is trisected at the points P & Q . If the P point lies on the line $2x - y + k = 0$, find the value of k .

Q15: Show that the points $(0,-1)$; $(2,1)$; $(0,3)$ & $(-2,1)$ are the vertices of a square.

Q16: Find the value of k such that the point $(0,2)$ is equidistant from the points $(3,k)$ & $(k,5)$.

Q17: The base BC of an equilateral $\triangle ABC$ lies on y - axis. The co-ordinates of point C are $(0,3)$. If the origin is the mid-point of the base BC , find the co-ordinates of the points A & B .

Q18: Two vertices of $\triangle ABC$ are given by $A(2,3)$ & $B(-2,1)$ & its centroid is $G(1, \frac{2}{3})$. Find the co-ordinates of the third vertex C of the $\triangle ABC$.

Q19: If the points $(10,5)$, $(8,4)$ & $(6,6)$ are the mid-points of the sides of a \triangle , Find its vertices.

Q20: If $(-2,-1)$, $(a,0)$; $(4,b)$ & $(1,2)$ are the vertices of a parallelogram, find the values of a & b .

Q21: Three consecutive vertices of a parallelogram are $(-2,1)$, $(1,0)$ & $(4,3)$. Find the co-ordinates of the fourth vertex.

Q22: If the point $C(-1,2)$ divides the line-segment AB in the ratio $3:4$, where the co-ordinates of A are $(2,5)$, find the co-ordinates of B .

Q23: Prove that $(2,-2)$, $(-2,1)$ & $(5,2)$ are vertices of a right angled triangle. Find the area of the triangle & the length of the hypotenuse.

Q24: An equilateral triangle has two vertices at the points $(3,4)$ & $(-2,3)$. Find the co-ordinates of the third vertex.

Q25: Find the center of the circle passing through $(5,-8)$, $(2,-9)$ & $(2,1)$.

Q26: If A & B are $(1,4)$ & $(5,2)$ respectively. find the co-ordinates of P , when $\frac{AP}{BP} = \frac{3}{4}$.

Q27: Find the lengths of the median of a $\triangle ABC$ whose vertices are $A(7,-3)$, $B(5,3)$ & $C(3,-1)$.

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Q28: Determine the ratio in which the line $y - x + 2 = 0$ divides the line segment joining the points $(3, -1)$ & $(8, 9)$.

Q29: If two vertices of a parallelogram are $(3, 2), (-1, 0)$ & the diagonals cut at $(2, -5)$. Find the other vertices of the parallelogram.

Q30: Find the point on the $y - axis$ which is equidistant from $(-5, -2)$ & $(3, 2)$.

Q31: Find the value of k , if the point $P(0, 2)$ is equidistant from $(3, k)$ & $(k, 5)$.

Q32: The co-ordinates of A & B are $(1, 2)$ & $(2, 3)$. Find the co-ordinates of R so that $\frac{AR}{RB} = \frac{4}{3}$.

Q33: Find the lengths of the medians of the triangle whose vertices are $(1, -1), (0, 4)$ & $(-5, 3)$.

Q34: Show that the mid-point of the line-segment joining the points $(5, 7)$ & $(3, 9)$ is also the mid-point of the line segment joining the points $(8, 6)$ & $(0, 10)$.

Q35: Find the centroid of the triangle whose vertices are given as: $(4, -8), (-9, 7)$ and $(8, 13)$.

Q36: Find the third vertex of a triangle, if two of its vertices are at $(-3, 1)$, & $(0, -2)$ & the centroid is at the origin.

Q37: Prove that the diagonals of a rectangle bisect each other & are equal.

Q38: Find the point on $x - axis$ which is equidistant from $(2, -5)$ & $(-2, 1)$.

Q39: If the points $A(6, 1), B(8, 2), C(9, 4)$ & $D(p, 3)$ are the vertices of a parallelogram, taken in order, find the value of p .

Q40: Find the area of a rhombus if the vertices are $(3, 0), (4, 5), (-1, 4)$ & $(-2, -1)$ taken in order.

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Q41: Find the area of the triangle formed by joining the mid-points of the sides of triangle whose vertices are $(0, -1)$, $(2, 1)$ & $(0, 3)$. Find the ratio of the area of the triangle formed to the area of the given triangle.

Answers:

Q3: 3: 2, 5

Q4: $(-2, 0)$

Q6: $\frac{2}{7}$

Q7: 3

Q9: 4: 7

Q10: $(3, 2)$

Q11: 2

Q14: $k = -8$

Q16: $k = 1$

Q17: $(\pm 3\sqrt{3}, 0)$ & $(0, 3)$

Q18: $(3, -2)$

Q19: $(4, 5), (8, 7), (12, 3)$

Q20: $a = 1, b = 3$

Q21: $(1, 2)$

Q22: $(-5, -2)$ Q23: $(3, -2)$

Q24: $(\frac{1 \pm \sqrt{3}}{2}, \frac{7 \pm 5\sqrt{3}}{2})$

Q25: $(2, -4)$

Q26: $(\frac{19}{7}, \frac{22}{7})$

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Q27: $5, 5, \sqrt{10}$

Q28: $2: 3$ internally

Q29: $(1, -12), (5, -10)$

Q30: $(0, -2)$

Q31: 1

Q32: $(\frac{11}{7}, \frac{18}{7})$

Q33: $\frac{\sqrt{130}}{2}, \frac{\sqrt{130}}{2}, \sqrt{13}$

Q35: $(1, 4)$

Q36: $(3, 1)$

Q38: $(-7, 0)$

Q39: $p = 7$

Q40: 24 sq. units

Q41: $(1: 4)$