



MATHS

BOOKS - NAGEEN PRAKASHAN ENGLISH

CO-ORDINATE GEOMETRY

Solved Examples

1. Find the distance between the following points :

(i) (3, 4) and (5, 2)

(ii) (0, 2) and (4, -1)

(iii) (a, 2a) and (-a, -2a)

(iv) (4, -3) and (-6, 5)



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2. Find the distance between the points $(5, 8)$ and $(-3, 2)$.

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3. Find the distance between the points $(2, 6)$ and $(0, 9)$.

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4. Find the distance between the points $(a \cos \theta, a \sin \theta)$ from the origin.

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5. Find the distance of the point $(3, 4)$ from the origin.

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6. If the distance between the points $(x, 2)$ and $(6, 5)$ is 5 units, find the value of ' x '.

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7. If the distance between the points $(-2, -5)$ and $(-6, y)$ is 5 units, find the value of y .

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8. If the distances of $P(x, y)$ from $A(5, 1)$ and $B(-1, 5)$ are equal, then prove that $3x=2y$.

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9. Prove that the points $(5, -2)$, $(-4, 3)$ and $(10, 7)$ are the vertices of an isosceles right-angled triangle.

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10. Prove that the points (a, a) , $(-a, -a)$ and $(-a\sqrt{3}, a\sqrt{3})$ are the vertices of an equilateral triangle.

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11. Prove that the points $(4, 8)$, $(7, 5)$, $(1, -1)$ and $(-2, 2)$ are the vertices of a parallelogram.

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12. Prove that the points $(2, -1)$, $(4, 1)$, $(2, 3)$ and $(0, 1)$ are the vertices of a square.



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13. Show that the points $A(-3, 3)$, $B(7, -2)$ and $C(1, 1)$ are collinear.



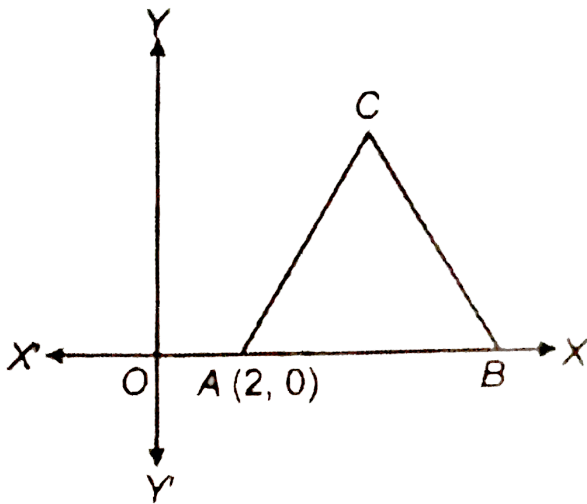
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14. Show that the points $(9, -2)$, $(-5, 12)$ and $(-7, 10)$ lie on that circle whose centre is the point $(1, 4)$



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15. In the given figure, $\triangle ABC$ is an equilateral triangle of side 3 units. Find the coordinates of the other two vertices.



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16. A cyclic quadrilateral is drawn such that three of its consecutive vertices are $(0, 4)$, $(0, 0)$ and $(2, 0)$. Find the longest distance between any two vertices of this quadrilateral.

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17. If the two vertices of an equilateral triangle be $(0, 0)$, $(3, \sqrt{3})$, find the third vertex.

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18. What point on the X-axis is equidistant from $(7, 6)$ and $(-3, 4)$?

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19. Find the equation of the set of all points equidistant from the point $(4, 2)$ and the X-axis.

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20. Find the equation of the set of points such that the sum of its distances from $(0, 3)$ and $(0, -3)$ is 8.

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21. Find the equation of the set of all points which are twice as far from $(3, 2)$ as from $(1, 1)$.

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22. If
 $A(2, 2)$, $B(-2, -2)$, $C(-2\sqrt{3}, 2\sqrt{3})$ and $D(-4 - 2\sqrt{3}, 4 + 2\sqrt{3})$
are the co-ordinates of 4 points. What can be said about these four points ?

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23. Find the coordinates of points on the line joining the point that is twice as far from as from

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24. Show that $\triangle ABC$, where $A(-2, 0)$, $B(2, 0)$, $C(0, 2)$ and $\triangle PQR$ where $P(-4, 0)$, $Q(4, 0)$ and $R(0, 4)$ are similar triangles.

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25. Find the co-ordinates of a point which divides the line segment joining the points $(5, 1)$ and $(-10, 11)$ in the ratio $2 : 3$ internally.

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26. If a point P lies on the line segment joining points $A(-3, 4)$ and $B(-2, -6)$ such that $2AP = 3BP$ then, find the co-ordinates of point P .

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27. Find the co-ordinates of a point which divides the line joining the points $A(3, 4)$ and $B(-2, -1)$ in the ratio $3 : 2$ externally.

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28. Find the co-ordinates of a point which divides the line joining the points $A(5, -2)$ and $B(4, 6)$ in the ratio $1 : 2$ externally.

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29. Find the co-ordinates of the mid-point of the line segment joining the points $A(3, -5)$ and $B(1, 1)$.

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30. The co-ordinates of the end points of a diameter are $(-1, 5)$ and $(3, -1)$. Find the co-ordinates of the centre and the radius of circle.

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31. The co-ordinates of the mid-point of line joining the points A and B are $(2, -3)$. If the co-ordinates of point A are $(-3, 4)$, then find the co-ordinates of point B.

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32. Find the ratio in which X-axis divides the line segment joining the points (8, 5) and (-3, - 7).

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33. In what ratio does the point $\left(\frac{24}{11}, y\right)$ divide the line segment joining the points $P(2, - 2)$ and $Q(3, 7)$? Also find the value of y .

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34. The co-ordinates of the vertices of ΔABC are $A(3, 2)$, $B(1, 4)$ and $C(- 1, 0)$. Find the length of median drawn from point A.

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35. Find the co-ordinates of the points fo trisection of the line joining the points $(3,-2)$ and $(-3, -4)$.

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36. If two adjacent vertices of a parallelogram are $(3, 2)$ and $(-1, 0)$ and the diagonals intersect at $(2, -5)$, then find the coordinates of the other two vertices.

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37. The co-ordinates of three consecutive vertices of a parallelogram are $(-1,0)$, $(3, 1)$ and $(2, 2)$. Find the co-ordinates of fourth vertex of the parallelogram.

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38. Find the image of point P(3,-1) in the point A (-5, 2).

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39. In what ratio does the line $x - y - 2 = 0$ divides the line segment joining (3, -1) and (8, 9) ?

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40. Find a point on the line through $A(5, -4)$ and $B(-3, 2)$, that is, twice as far from A as from B.

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41. Find the centroid of the triangle whose vertices are $A(-1,0)$, $B(5, -2)$ and $C(8, 2)$.

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42. A line intersects the Y- axis and X-axis at the points P and Q, respectively. If (2,-5) is the mid- point of PQ, then the coordinates of P and Q are, respectively.



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43. Point P (h,k) divides a line segment between the axes in the ratio 1 : 2 Find the lengths (intercepts) on the axes made by this segment. Also find the area of triangle formed by the line segment and the axes.



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44. Find the area of the triangle, whose vertices are (2,1), (4,5) and (6,3).

A. 3

B. 6

C. 9

D. 12

Answer: B

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45. Find the area of triangle, whose vertices are $(2,3)$, $(7,5)$ and $(-7,-5)$.

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46. Find the area of the triangle, whose vertices are $(a,c+a)$, (a,c) and $(-a,c-a)$.

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47. Prove that the points (6,4) (4,5) and (2,6) are collinear.

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48. If the points A (x,y), B (1,4) and C (-2,5) are collinear, then shown that $x + 3y = 13$.

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49. For what value of 'k', the points (k,1), (1,-1) and (11,4) are collinear ?

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50. If $a \neq b \neq 0$, prove that the points (a, a^2) , (b, b^2) , $(0, 0)$ will not be collinear.

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51. If (x,y) be any point on the line segment joining the points $(a,0)$ and $(0,b)$ then prove that $\frac{x}{a} + \frac{y}{b} = 1$.

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52. If P be a point equidistant from points $A(3,4)$ and $B(5,-2)$ and area of $\triangle PAB$ is 10 square units, then find the co-ordinates of point P .

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53. The area of a triangle is 5 sq. units. Two of its vertices are $(2,1)$ and $(3,-2)$. If the third vertex is $\left(\frac{7}{2}, y\right)$, find the value of y .

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1. If the point $P(k-1, 2)$ is equidistant from the points $A(3, k)$ and $B(k, 5)$, find the values of k .

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2. Find a point on y -axis which is equidistant from the points $(5, -2)$ and $(-3, 2)$.

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3. Points $A(-1, y)$ and $B(5, 7)$ lie on a circle with centre $O(2, -3y)$. Find the values of y . Hence, find the radius of the circle.

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4. The points $A(4, 7)$, $B(p, 3)$ and $C(7, 3)$ are the vertices of a right triangle, right-angled at B , Find the values of P .

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

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6. Find the ratio in which the point $P(x, 2)$ divides the line segment joining the points $A(12, 5)$ and $B(4, -3)$. Also find the value of x .

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7. Find the lengths of the medians of a ABC whose vertices are $A(7, -3)$, $B(5, 3)$ and $C(3, -1)$.

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8. If the points $A(-1, -4)$, $B(b, c)$ and $C(5, -1)$ are collinear and $3b + c = 4$, find the values of b and c .

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Problems Of Ncert Exemplar

1. Find the points on the X-axis which are at distance of $2\sqrt{5}$ from the point $(7, -4)$. How many such points are there?

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2. Find a point which is equidistant from the points $A(-5, 4)$ and $B(-1, 6)$ How many such points are there ?

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3. Find the value of m , if the points $(5,1)$, $(-2,-3)$ and $(8,2m)$ are collinear .

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4. If $P(9a - 2, -b)$ divides the line segment joining the points $A(31 + 1, -3)$ and $B(81, 5)$ in the ratio $3:1$: Find the values of a and b .

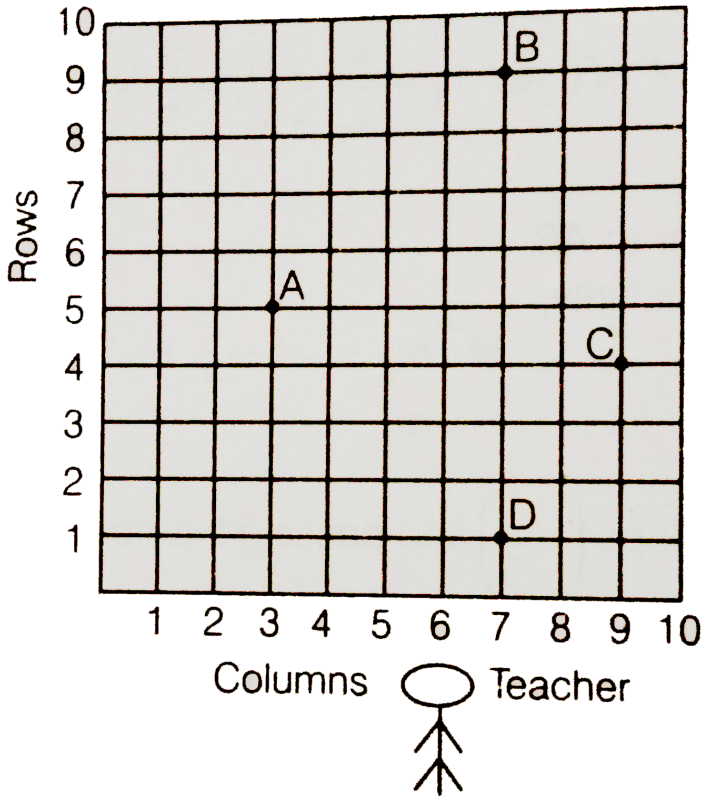
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5. $A(6, 1)$, $B(8, 2)$ and $C(9, 4)$ are three vertices of parallelogram ABCD. If E is the mid-point of DC, then find the area of $\triangle ADE$.

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6. Students of a school are standing in rows and columns in their playground for a drill practice . A, B, C and D are the positions of four students as shown in figure . Is it possible to place Jaspal inn the drill in such a way that he is equidistant from each of the four students A,

B C and D ? If so, what should be his position ?



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7. Ayush starts walking from his house to office . Instead of going to the office directly , he goes to bank first , from there to his daughter 's school and then reaches the office. What is the extra distance

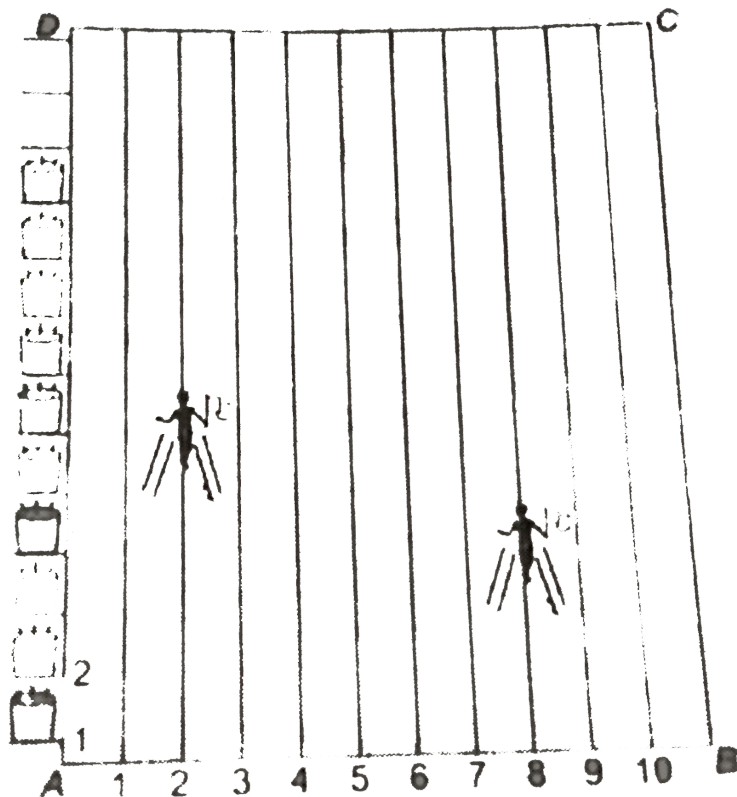
travelled by Ayush in reaching his office ? (Assume that all distance covered are in straight lines). If the house is situated at (2,4) bank at (5,8), school at (13,14) and office at (13,26) and coordinates are in km.

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8. To conduct Sports Day activities, in your rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1 m each. 100 flower pots have been placed at a distance of 1 m from each other along AD, as shown in figure.

Niharika runs $\frac{1}{4}$ th the distance AD on the 2nd line and posts a green flag. Preet runs $\frac{1}{5}$ th the distance AD on the eighth line and posts a red flag. What is the distance between both the flags ? If Rashmi has to post a blue flag exactly halfway between the line segment joining

the two flags, where should she post her flag ?



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9. Find the ratio in which the line segment joining the points $(3, 10)$ and $(6, 8)$ is divided by $(1, 6)$.

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

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

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12. Find the centre of a circle passing through the points $(6, -6)$, $(3, -7)$ and $(3, 3)$.

A. $(3, 2)$

B. $(3, -2)$

C. $(3, -3)$

D. None

Answer: B

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13. Two opposite vertices of a square are $(-1, 2)$ and $(3, 2)$. Find the coordinates of other two vertices.

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14. $ABCD$ is a rectangle formed by joining the points $A(-1, -1)$, $B(-1, 4)$, $C(5, 4)$ and $D(5, -1)$. P , Q , R and S are the mid-points of sides AB , BC , CD and DA respectively. Is the quadrilateral $PQRS$ a square? a rectangle? or a rhombus? Justify your answer.

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Exercise 7 A

1. Find the distance between the following points : (i) $A(-6, 4)$ and $B(2, -2)$ (ii) $A(-5, -1)$ and $B(0, 4)$

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2. Find the distance of the following points from origin :

(i) $(3, -4)$

(ii) $(-8, -6)$

(iii) $(5, 12)$

(iv) $(7, 24)$

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3. Find distance between the points $A(a, b)$ and $B(-b, a)$



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4. Find the distance between the points $(2a, 3a)$ and $(6a, 6a)$.



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5. Find the distance between origin and the point $(a, -b)$.



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6. If the distance between the points $(6, 0)$ and $(0, y)$ is 10 units, find the value of y .



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7. If the distance between the points $(3, x)$ and $(-2, -6)$ is 13 units, then find the value of x .

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8. Prove that the distance between the origin and the point $(-6, -8)$ is twice the distance between the points $(4, 0)$ and $(0, 3)$.

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9. Find the co-ordinates of a point whose abscissa is 10 and its distance from the point $(2, -3)$ is 10 units.

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10. Prove that the following points are the vertices of a right-angled triangle :

(i) $A(-2, 2)$, $B(13, 11)$ and $C(10, 14)$

(ii) $A(-1, -6)$, $B(-9, -10)$ and $C(-7, 6)$

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11. Prove that the following points are the vertices of an isosceles right-angled triangle :

(i) $A(-8, -9)$, $B(0, -3)$ and $C(-6, 5)$

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12. Prove that the points $A(1, 1)$, $B(-1, -1)$ and $C(\sqrt{3}, -\sqrt{3})$ are the vertices of an equilateral triangle.

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13. Prove that the points $(-1, -2)$, $(-2, -5)$, $(-4, -6)$ and $(-3, -3)$ are the vertices of a parallelogram.

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14. Prove that the points $(-4, -3)$, $(-3, 2)$, $(2, 3)$ and $(1, -2)$ are the vertices of a rhombus.

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15. Show that the following points are the vertices of a rectangle :

(i) $A(4, 2)$, $B(0, -4)$, $C(-3, -2)$, $D(1, 4)$

(ii) $A(1, -1)$, $B(-2, 2)$, $C(4, 8)$, $D(7, 5)$

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16. Show that the points $A(2, 1)$, $B(0, 3)$, $C(-2, 1)$ and $D(0, -1)$ are the vertices of a square.

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17. Show that the points $(1, 1)$, $(2, 3)$ and $(5, 9)$ are collinear.

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18. Show that the points $(0, 0)$, $(5, 3)$ and $(10, 6)$ are collinear.

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19. Show that the points $(-3, 2)$, $(2, -3)$ and $(1, 2\sqrt{3})$ lie on the circumference of that circle, whose centre is origin.

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21. If two opposite vertices of a square are $(1,2)$ and $(5,8)$ find the coordinates of its other two vertices and the equations of its sides.

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Exercise 7 B

1. Find the co-ordinates of a point which divides the line joining the points $(5, 3)$ and $(10, 8)$ in the ratio $2 : 3$ internally.

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2. Find the co-ordinates of a point which divides the line joining the points $(-1, 2)$ and $(3, 5)$ in the ratio $3 : 5$ internally.

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3. Find the co-ordinates of a point which divides the line joining the points $(2, -1)$ and $(3, 3)$ in the ratio $2 : 1$ internally.

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4. Find the co-ordinates of a point which divides the line segment joining the points $(1, -3)$ and $(2, -2)$ in the ratio $3 : 2$ externally.

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5. Find the co-ordinates of a point which divides the line segment joining the points $(3, 0)$ and $(0, 2)$ in the ratio $2 : 1$ externally.

A. $(3, 4)$

B. $(-3, 4)$

C. $(3, -4)$

D. $(-3, -4)$

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6. If a point A lies on the line segment joining the points $P(6, 0)$ and $Q(0, 8)$ such that $AP : AQ = 2 : 3$, find the co-ordinates of point A.

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7. Find the ratio in which X-axis divides the line segment joining the points $(8, 5)$ and $(-3, -7)$.



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8. Find the ratio in which Y-axis divides the line segment joining the points (3, 4) and (-2, 5).



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9. Find the ratio in which Y-axis divides the line segment joining the points (a, b) and (-b, a).



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10. Find the co-ordinates of the mid-point of the line joining the following points :

(i) (2, 4) and (6, 2)

(ii) (0, 2) and (2, -4)

(iii) $(a + b, a - b)$ and $(b - a, a + b)$

(iv) $(3, -5)$ and $(-1, 3)$



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11. The co-ordinates of the end points of a diameter of a circle are $(3, -2)$ and $(-3, 6)$. Find the co-ordinates of the centre and radius.



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12. The co-ordinates of the vertices of a $\triangle ABC$ are $A(1, 0)$, $B(3, 6)$ and $C(3, 2)$. Find the length of its medians.



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13. The co-ordinates of three consecutive vertices of a parallelogram are $(2, 0)$, $(4, 1)$ and $(6, 4)$. Find the co-ordinates of its 4th vertex.

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14. Find the co-ordinates of the points of trisection of the line segment joining the points (2, 5) and (6, -2).

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15. Find the co-ordinates of the points of trisection of the line segment joining the points (-2, 0) and (4, 0).

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16. Find the ratio in which the join of points (3, -1) and (8, 9) is divided by the line $y-x+2=0$.

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17. The line segment joining the points $(3, -4)$ and $(1, 2)$ is trisected at the points P and Q . If the coordinates of P and Q are $(p, -2)$ and $(5/3, q)$ respectively. Find the values of p and q .

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18. Two circles $C(O, r)$ and $C'(O', r')$ touch externally at $P(3, 1)$. If the coordinates of O and O' are $(1, p)$ and $(q, -2)$ respectively. Their areas are in the ratio $4 : 9$. Find the value of $p^2 + q^2$.

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Exercise 7 C

1. Find the area of that triangle whose vertices are $(2, 3)$, $(-3, 4)$ and $(7, 5)$.

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2. Find the area of that triangle whose vertices are $(1, 1)$, $(-1, 4)$ and $(3, 2)$.

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3. Find the area of that triangle whose vertices are $(-4, 3)$, $(-2, 1)$ and $(5, 2)$.

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4. Find the area of that triangle whose vertices are $(at_1^2, 2at_1)$, $(at_2^2, 2at_2)$ and $(at_3^2, 2at_3)$.

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5. Find the area of that triangle whose vertices are $(b + c, a)$, $(b - c, a)$ and $(a, -a)$.

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6. Prove that the following points are collinear :

(i) $(2,1), (4,3)$ and $(3,2)$ (ii) $(9,6), (-1,4)$ and $(2,5)$
(iii) $(b + c, a), (c + a, b)$ and $(a + b, c)$ (iv) $(5,6), (-1,4)$ and $(2,5)$

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7. (i) If the points $(1, 4)$, $(3, -2)$ and $(k, 1)$ are collinear, find the value of k .

(ii) If the points $A(k + 1, 2k)$, $B(3k, 2k + 3)$ and $C(5k - 1, 5k)$ are collinear, then find k

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8. If the points A (x, y) , $(-1, 3)$ and $(5, -3)$ are collinear, then show that $x + y = 2$.

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9. Find the area of the triangle formed by joining the midpoints of the sides of the triangle whose vertices are $(0, 1)$, $(2, 1)$ and $(0, 3)$. Find the ratio of this area to the area of the given triangle.

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10. Find the area of the quadrilateral whose vertices are $(-4, -2)$, $(-3, -5)$, $(3, -2)$, $(2, 3)$

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11. $A(4, 3)$, $B(6, 5)$ and $C(5, -2)$ are the vertices of a $\triangle ABC$, if P is a point on BC such that $BP:PC = 2:3$. Find the co-ordinates of P and then prove that $ar(\triangle ABP):ar(\triangle ACP) = 2:3$.

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12. The vertices of a $\triangle ABC$ are $A(4, 6)$, $B(1, 5)$ and $C(7, 2)$. A line is drawn to intersect sides AB and AC at D and E respectively, such that $\frac{AD}{AB} = \frac{AE}{AC} = \frac{1}{4}$. Calculate the area of the $\triangle ADE$ and compare it with the area of $\triangle ABC$.

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13. The equations $(b - c)x + (c - a)y + a - b = 0$ and $(c - a)x + (a - b)y + b - c = 0$ are two of its sides. Two of its vertices are $(2, 1)$ and $(3, -2)$. The third vertex lies on $y = x + 3$. The coordinates of the third vertex cannot be

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14. The perpendicular bisector of the line segment joining the points $A(1, 5)$ and $B(4, 6)$ cuts the y-axis at which point?

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Exercise 7 D

1. Find the values of y of which the distance between the points $A(3, -1)$ and $B(11, y)$ is 10 units.

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2. Find the relation between x and y such that the point $P(x, y)$ is equidistant from the points $A(1, 4)$ and $B(-1, 2)$.

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3. Find the point on Y-axis which is equidistant from the points $(-5, 2)$ and $(-9, -2)$.

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4. Find the co-ordinates of the point equidistant from three given points $A(5, 1)$, $B(-3, -7)$ and $C(7, -1)$.

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5. Show that the points (a, a) , $(-a, -a)$ and $(-\sqrt{3}a, \sqrt{3}a)$ are the vertices of an equilateral triangle. Also, find its area.

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6. Show that the points $(1, 1)$, $(-1, 5)$, $(7, 9)$ and $(9, 5)$ taken in that order, are the vertices of a rectangle.

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7. Show that the points $A(3, 5)$, $B(6, 0)$, $C(1, -3)$ and $D(-2, 2)$ are the vertices of a square ABCD.

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8. If $P(2, -1)$, $Q(3, 4)$, $R(-2, 3)$ and $S(-3, -2)$ be four points in a plane, show that $PQRS$ is a rhombus but not a square. Find the area of the rhombus.

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9. Find the co-ordinates of a point P on the line segment joining $A(1, 2)$ and $B(6, 7)$ such that $AP = \frac{2}{5}AB$.

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10. Point P divides the line segment joining the points $A(2, 1)$ and $B(5, -8)$ such that $\frac{AP}{AB} = \frac{1}{3}$. If P lies on the line $2x - y + k = 0$, find the value of k .

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11. Find the ratio in which the point $P(11, y)$ divides the line segment joining the points $A(15, 5)$ and $B(9, 20)$. Also find the value of y .

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12. Two vertices of a ΔABC are given by $A(6, 4)$ and $B(-2, 2)$ and its centroid is $G(3, 4)$. Find the co-ordinates of the vertex C of ΔABC .

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13. The base QR of an equilateral triangle PQR lies on X -axis. The co-ordinates of the point Q are $(-4, 0)$ and origin is the mid-point of the base. Find the co-ordinates of the points P and R .

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14. The mid-point P of the line segment joining the points $A(-10, 4)$ and $B(-2, 0)$ lies on CD . Also, find the value of y .

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15. Find the value of k so that the area of the triangle with vertices $(1, -1)$, $(-4, 2k)$ and $(-k, -5)$ is 24 square units.

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16. If $A(4, -6)$, $B(3, -2)$ and $C(5, 2)$ are the vertices of a $\triangle ABC$ and AD is its median, prove that the median AD divides $\triangle ABC$ into two triangles of equal areas.

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17. Find the area of quadrilateral $ABCD$, whose vertices are $A(-4, 8)$, $B(-3, -4)$, $C(0, -5)$ and $D(5, 6)$.

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18. If the area of $\triangle ABC$ with vertices $A(x, y)$, $B(1, 2)$ and $C(2, 1)$ is 6 square units, then prove that $x + y = 15$ or $x + y + 9 = 0$.

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Revision Exercise Very Short Answer Questions

1. Find the value of a so that the point $(3, a)$ lies on the line represented by $2x - 3y = 5$

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2. Find the value of k so that the point $(2, 5)$ lies on the line represented by $kx + 3y = 1$.

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3. Find the distance of the point $(4, -3)$ from the origin .

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4. Find the distance between the points $(0, -3)$ and $(3, 0)$

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5. In what ratio does the Y-axis divide the join of $(-4, 2)$ and $(8, 3)$?

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6. If the distance between the point $(x, -1)$ and $(-2, 2)$ is 5 , then find the possible values of x .

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7. Find the centroid of $\triangle ABC$ whose vertices are $A(0, -1)$, $B(-2, 5)$ and $C(2, 8)$.

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8. Two vertices of $\triangle ABC$ are $A(-1, 4)$ and $B(5,2)$ and its centroid is $(0, -3)$. Find the co-ordinates of point C .

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9. Three vertices of a parallelogram $ABCD$ are $B(6,7)$, $C(8,3)$ and $D(0, -1)$. Find the co-ordinates of vertex A .

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10. Find the value of k if the points $(2,3)$, $(5,k)$ and $(6,7)$ are collinear .

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Revision Exercise Short Answer Questions

1. If $A(-2, 4)$, $B(0, 0)$ and $C(4, 2)$ are the vertices of $\triangle ABC$, find the length of the median through A.



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2. Find the relation between x and y if the points $A(x, y)$, $B(-5, 7)$ and $C(-4, 5)$ are collinear.



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3. Determine the ratio in which the straight line $x - y - 2 = 0$ divides the line segment joining $(3, -1)$ and $(8, 9)$.



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4. Find the area of the triangle whose vertices are $(3,8)$, $(-4,2)$ and $(5,-1)$.

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5. Prove that the points $A(9, 0)$, $B(9,6)$, $C(-9, 6)$ and $D(-9, 0)$ are the vertices of a rectangle .

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6. Show that the points $A(-1, -4)$, $B(3,3)$, $C(3,4)$ and $D(-1, -3)$ are the vertices of a rhombus.

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7. If $D(3,-2)$, $E(-3,1)$ and $F(4,-3)$ are the mid-points of the sides BC , CA and AB respectively of $\triangle ABC$, find the co-ordinates of point A , B and C .

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8. If the point $P (- 1, 2)$ divides the line segment joining $A (2,5)$ and B in the ratio $3: 4$, find the co-ordinate of B .

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9. Prove that the points $(a, 0)$, $(0, b)$ and $(1, 1)$ are collinear if,

$$\frac{1}{a} + \frac{1}{b} = 1 .$$

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10. If A (1,2) , B(-2, 3) and C(-3,-4) be the vertices of ΔABC . Verify that median BE divides it into two triangles of equal areas.



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