MATHS

BOOKS - AGRAWAL PUBLICATION

COORDINATE GEOMETRY

Example

1. The point on the x-axis which is equidistant from (-4,0) and (10,0) is:

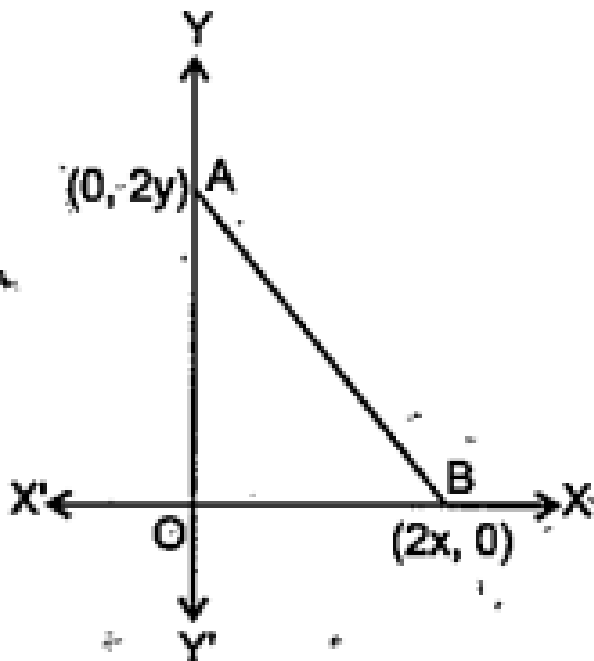A. (7, 0)

B. (5, 0)

C. (0, 0)

D. (3, 0)

Answer:

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2. The coordinates of the point which is

equidistant from the three vertices of the

$\triangle AOB$ as shown in the figure is:

3. A circle drawn with origin as the centre passes through $\left(\dfrac{13}{2}, 0\right)$. The point which

does not lie in the interior of the circle is:

A. $\left(-\dfrac{3}{4},\ 1\right)$

B. $\left(2,\ \dfrac{7}{3}\right)$

C. $\left(5,\ -\dfrac{1}{2}\right)$

D. $\left(-6,\ \dfrac{5}{2}\right)$

Answer:

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4. AOBC is a rectangle whose three vertices are A(0,-3), O(0,0) and B(4,0). The length of its diagonal is................

5. The centroid of the triangle whose vertices are (4,-8), (-9,7) and (8,13) is.............

6. The ratio in which x-axis divides the line segment joining the point (2,3) and (-4,8) is ....

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7. The mid-point of the line segment AB is (4,0). If the cordinate of point A is (3,-2), then coordinates of point B is...............

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8. Distance of a point (-24,7) from the origin (in units) is..............

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9. $\triangle\,ABC$ with vertices A(-2,0), B(2,0) and C(0,2) is similar to $\triangle\,DEF$ with vertices D(-4,0), E(4,0) and F(0,4).

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10. Point P(-4,2) lies on the line segment joining the points A(-4,6) and B(-4,-6).

11. Points A(4,3), B(6,4), C(5,-6) and D(-3,5) are the vertices of a parallelogram.

12. Point P(5,-3) is one of the two points of trisection of the line segment joining points A(7,-2) and B(1,-5).

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13. The points P (-2,4) lies on a circle of radius 6 and centre (3,5).

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14. The points A(-1,-2), B(4,3), C(2,5) and D(-3,0) in that order form a rectangle.

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15. Find the distance of a point P(x,y) from the origin.

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16. The coordinate of a point A, where AB is the diameter of a circle whose center is (2,-3) and B(1,4) are:

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17. Find the distance between the points (a,b) and (-a,-b).

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

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19. The mid-point of the line segment joining A(2a,4) and B(-2,3b) is (1, 2a, +1). Find the value of a and b.

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

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

22. In what ratio does the point P(-4,6) divide the line segment joining the points A(-6,10) and B(3,-8)?

23. Find the ratio in which the point (-3,k) divides the line segment joining the points (-5,-4) and (-2,3). Also, find the value of k.

24. 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

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

26. The coordinates of houses of Sonu and Labhoo are (7,3) and (4,3) respectively. Coordinates of their school is (2,2). If both leave their house at the same time in the morning and also reach school in same time, then who travel faster?

27. 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 value of p.

28. The class X students of a secondary school have been alloted a rectangular plot of land for their gardening activity. Saplings of Gulmohar are planted on the boundary at a distance of 1 metre from each other. There is a triangular grassy lawn in the plot as shown in the figure.
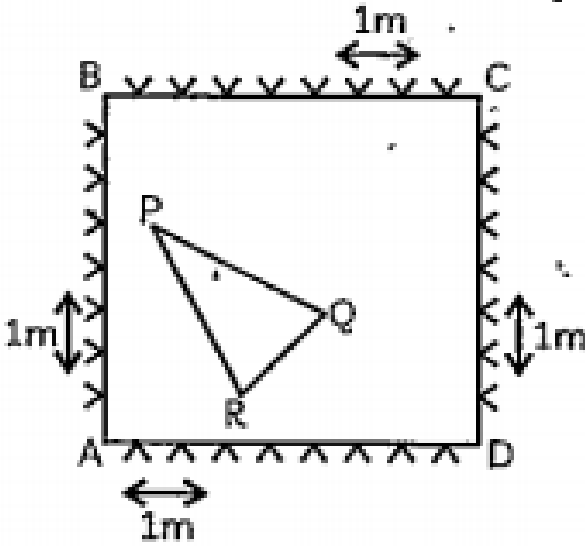
Taking A as the origin,find the coordinates of the vertices P,Q and R of the triangle PQR.

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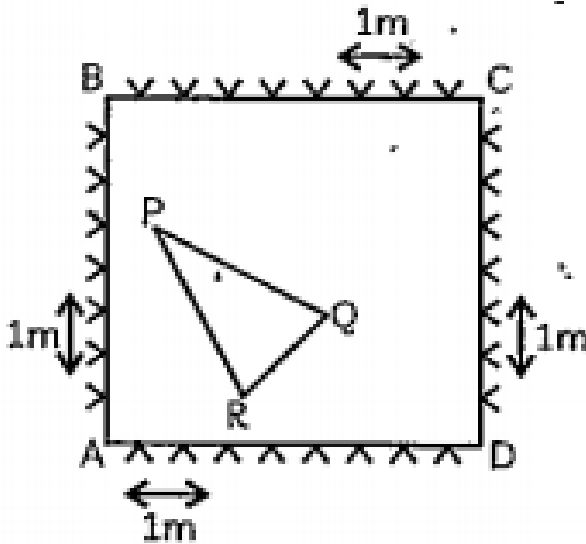
Find coordinates of P, Q, R with C as origin, CB

as x-axis and CD as y-axis.

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30. Find the area of quadrialteral ABCD having vertices at A(1,2), B(1,0), C(4,0) and D(4,4).

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31. If the point C(-1,2) divides internally the line segment joining A(2,5) and B(x,y) in the ratio 3:4, find the coordinates of B.

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32. Prove that the points (2,-2), (-2,1) and (5,2) are the vertices of a right angled triangle. Also find the area of this triangle.

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33. Find the ratio in which y-axis divides the line segment joining the points A(5,-6) and B(-1,-4).Also, find the coordinates of the point of division.

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34. The x-coordinates of a point P is twice its y-coordinate. If P is equidistant from Q(2,-5) and R(-3,6), find the coordinates of P.

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35. If the distance between the points (4,k) and (1,0) is 5, what can be the possible values of kK?

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36. Let P and Q be the points of trisection of the line segment joining the points A(2,-2) and B(-7,4) that P is nearer to A. Find the coordinates of P and Q.

37. Find the co-ordinates of the points of trisection of the line segment joining the points (3,-1) and (6,8).

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

39. What type of a quadrilateral do the points A(2,-2), B(7,3), C(11,-1) and D(6,-6), taken in that order form?

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

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

42. In what ratio does the point P(-4,y) divide the line segment joining the points A(-6,10) and B(3,-8)? Find the value of y.

43. Find the ratio in which the line x-3y= 0 divides the line segment joining the points (-2,-5) and (6,3). Find the coordinates of the points of intersection.

44. Find the coordinates of the point Q on the x-axis which lies on the perpendicular bisector of the line segment joining the points A(-5,-2) and B(4,-2). Name the type of triangle formed by the points Q,A and B.

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

46. The line segment joinng the points A(2,1) and B(5,-8) is trisected at the points P and Q such that P is nearer to A. If P also lies on the line given by 2x - y +k = 0, find the value of k.

47. If the point A(2,-4) is equidistant from P(3,8)and Q(-10,y), find the values of y. Also find distance PQ.

48. If A (-2,1), B(a,0), C(4,b) and D(1,2) are the vertices of a parallelogram ABCD, find the values of a and b. Also, find the lengths of its sides.

49. Find the coordinates of the points of trisection of the line segment joining the

points (3,-2) and (-3, -4).

50. If P (9a-2,-b) divides line segment joining A (3a+1,-3) and B(8a,5) in the ratio $3:1$, then find the values of a and b.

51. In what ratio does the point $\left(\frac{24}{11}, y\right)$ divide the line segment joining the points P(2,

-2), Q(3,7)? Also find the value of y.

52. Find the ratio in which the line $2x + 3y - 5 = 0$ divides the line segment joining the points (8,-9) and (2,1). Also find the coordinates of the points of division.

53. Find the coordinates of a point on the x-axis which is equidistant from the points A(2,-5) and B(-2,9).

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54. Write the coordinates of a point P on x-axis which is equidistant from the points A(-2,0) and B(6,0).

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55. If the point (x, y) is equidistant from the points (a+b, b-a) and (a-b, a+b), then prove that bx=ay.

56. If the coordinates of points A and B are (-2,2) and (2,-4) respectively. Find the coordinates of P such that $AP = \frac{3}{7}AB,$ where P lies on the line segment AB.

57. The point R divides the line segment AB, where A(-4,0) and B(0,6) such that AR = $\dfrac{3}{4}AB$. Find the coordinates of R.

58. Find the ratio in which the line segment joining the points (1,-3) and (4,5) is divides by x-axis? Also find the coordinates of this point on x-axis.

59. Find the ratio in which P(4,m) divides the line segment joining the points A(2,3) and B(6,3). Hence find m.

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60. Prove that the points (3,0), (6,4) and (-1,3) are the vertices of a right angled isosceles triangle.
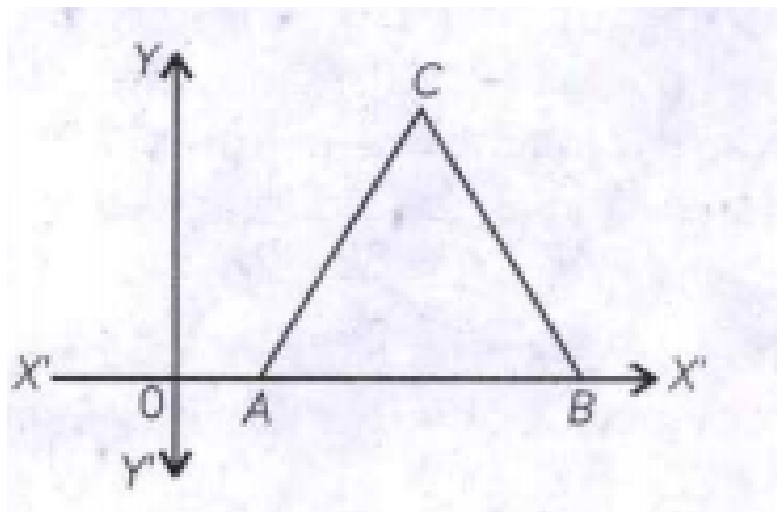
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61. If the line segment joining the points A(2,1) and B(5,-8) is trisected at the point P and Q. find the coordinates of P.

62. In the given figure, $\triangle ABC$, is an equilateral triangle of side 3 units. Find the

coordinates of the other two vertices.

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

64. If the point C(-1,2) divides internally the line segment joining the points A(2,5) and B(x,y) in the ratio 3:4, find the value of $x^2 + y^2$.

65. Find the ratio in which the points (2, y) divides the line segment joining the points A (-2, 2) and B (3, 7). Also, find the value of y.

66. Points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the vertices of $\triangle\ ABC$.

The median from A meets BC at D. find the coordinates of point D.

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67. Points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the vertices of $\triangle\ ABC$.

Find the cooridnates of the point P on AD such that AP:PD = 2:1.

**68.** Points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the vertices of $\triangle ABC$.

Find the coordinates of points Q and R on medians BE and CF respectively, such that $BQ : QE = 2 : 1$ and $CR : RF = 2 : 1$.

69. 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
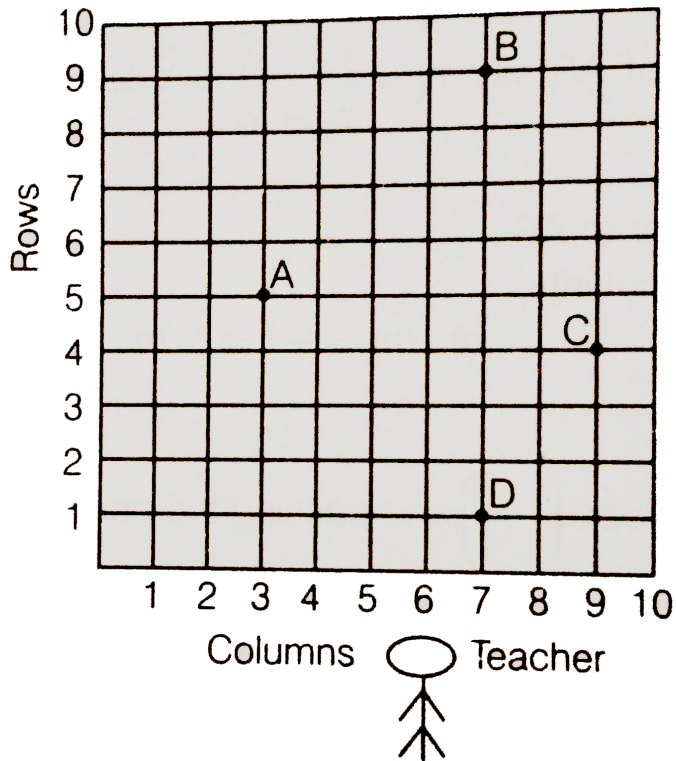
his position ?

70. 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.