MATHS

BOOKS - ICSE

DISTANCE FORMULA

Example

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

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2. Find the distance between the origin and the point :

(-12, - 5)

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3. Find the distance between the origin and the point :

(15, -8)

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4. Find the co-ordinates of points on the x-axis which are at a distance of 5 units from the points (6, -3).

5. Km is a straight line of 13 units. If K has the co-ordinates (2,5) and M has the co-ordinates (x, -7), find the values of x.

6. Which point on the y-axis is equidstant from the points (12, 3) and (-5, 10)

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7. Use the distance formula to show that the points A(1, -1), B (6,4) and C(4,2) are colinear.

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8. Show that the points A(8,3) , B(0,9) and C(14, 11) are the verties of an isosceles right - angled triangle.

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9. Find thte area of a circle, whose centre is (5, -3) and which passes through the point (-7, 2).

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10. Find the point on the x-axis whose distances from the points A(7, 6) and B(-3, 4) are in the ratio 1 : 2.

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11. Find the co-ordinates of the circumecentre of the triangle ABC, whose vertices A, B and C are (4, 6), (0,4) and (6,2) respectively.

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Exercise 28

1. Find the distance between the following paris of points :

`(-3, 6) and (2, -6)

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Exercise 29

1. Find the distance between the following paris of points :

(-a, -b) and (a,b)

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Exercise 30

1. Find the distance between the following paris of points :

$\left(\frac{3}{5}, 2\right)$ and $\left(-\frac{1}{5}, 1\frac{2}{5}\right)$

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Exercise 31

1. Find the distance between the following paris of points :

$(\sqrt{3}+1, 1)$ and $(0, \sqrt{3})$

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Exercise 32

1. Find the distance between the origin and the point :

(-8, 6)

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Exercise 33

1. Find the distance between the origin and the point :

(-5, 12)

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Exercise 34

1. Find the distance between the origin and the point :

(8, -15)

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Exercise 35

1. The distance betweent the points (3,1) and (0,x) is 5. Find x.

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Exercise 36

1. Find the co-rodinates of points of the x-axis which are at a distance of 17 units from the point (11, -8)

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Exercise 37

1. Find the co-ordinates of the points on the y-axis, which are at a distance of 10 units from the point (-8, 4)

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Exercise 38

1. A point A is at a distance of $\sqrt{10}$ unit from the point (4,3). Find the co-ordinates of the point A, if its ordinate is twice its abscissa.

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Exercise 39

1. A point P (2, -1) is equidistant from the points (a,7) and (-3,a). Find a.

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Exercise 40

1. What point on the x-axis is equidistant from the points (7,6) and (-3,4)?

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Exercise 41

1. Find a point on the y-axis which is equidistant from the point (5,2) and (-4,3).

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Exercise 42

1. A point P lies on the x-axis and another point Q lies on the y-axis.

Write the ordinate of point P.

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Exercise 43

1. A point P lies on the x-axis and another point Q lies on the y-axis.

Write the abscissa of point Q.

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2. Show that the points P (0, 5), Q(5, 10) and R(6, 3) are the vertices of an isosecles triangle.

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Exercise 44

1. A point P lies on the x-axis and another point Q lies on the y-axis.

If the abscissa of point P is - 12 and the ordinate of point Q is - 16, calculate the length of line segment PQ.

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2. Prove that the points P (0,-4), Q(6,2) R(3,5) and S (-3, -1) are the vertices of a rectangularj PQRS.

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Exercise 45

1. Prove that the points A(1, -3), B (-3, 0) and C(4, 1) are the vertices of an isosceles right-angled triangle. Find the area of the triangle.

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Exercise 46

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

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Exercise 47

1. Show that the points $(-3, 2), (-5, -5), (2, -3) and (4, 4)$ are the vertices of a rhombus. Find the area of this rhombus.

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Exercise 48

1. Points A (-3, -2), B (-6, a), C (-3, -4) and D(0, -1) are thte vertices of quadrilateral ABCD, find a if 'a' is negative and AB = CD

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Exercise 49

1. The vertices of a triangle are (5,1), (11,1) and (11,9). Find the co-ordinates of the circumcentre of the triangle.

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Exercise 50

1. Given A = (3,1) and B = (0, y -1), Find y if AB = 5.

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Exercise 51

1. Given A = (x + 2, -2) and B = (11, 6). Find x if AB = 17.

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Exercise 52

1. The centre of a circle is (2x - 1, 3x + 1). Find x if the circle passes through (-3, 1) and the length of diameter is 20 unit.

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Exercise 53

1. The length of line PQ is 10 units and the co-ordinates of P are (2, -3), calculate the co-ordinates of point Q, if its absicissa is 10.

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Exercise 54

1. Points P (2, 7) is the centre of a circle with radius 13 unit, PT is perpendicular to chord AB and T = (-2, -4), Calculate the length of ,

(i) AT

(ii) AB.

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Exercise 55

1. Calculate the distance between the points P(2,2) and Q(5,4) correct to three significant figures.

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Exercise 56

1. Calculate the distance between A (7,3) and B on the x-axis whose abscissa is 11.

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Exercise 57

1. Calculate the distance between A(5, -3) and B on the y-axis whose ordiate is 9.

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Exercise 58

1. Find the point on y-axis whose distances from the points A(6, 7) and B (4, 3) are in the ratio 1 : 2.

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Exercise 59

1. The distance of point P(x, y) from the points A(1, -3) and B(-2, 2) are in the ratio 2 : 3. Show

that

$5x^2 + 5y^2 - 34x + 70y + 58 = 0.$

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Exercise 60

1. The points A(3,0) , B (a, -2) and C(4, -1) are the vertices of triangle ABC right angled at vertex A. Find the value of a.

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