

- 1) Show that the points (a, a) , $(-a, -a)$ and $(-\sqrt{3}a, \sqrt{3}a)$ are the vertices of an equilateral Δ
- 2) Show that four points $(0, -1)$, $(6, 7)$, $(-2, 3)$ and $(8, 3)$ are the vertices of a rectangle
- 3) Prove that the diagonals of a rectangle with vertices $(0, 0)$, $(a, 0)$, (a, b) and $(0, b)$ bisect each other and are equal.
- 4) Prove that $(4, -1)$, $(6, 0)$, $(7, 2)$ and $(5, 1)$ are the vertices of a rhombus. Is it a square?
- 5 Show that the points $A(3, 5)$, $B(6, 0)$, $C(1, -3)$ and $D(-2, 2)$ are the vertices of a square ABCD
- 6) Show that the following points are the vertices of a right angled isosceles triangle: $(1, 2)$, $(1, 5)$ and $(4, 2)$
- 7) Find a relation between x and y such that the point (x, y) is equidistant from the points $(7, 1)$ and $(3, 5)$ $(x - y = 2)$
- 8) If the distance of $P(x, y)$ from the points $A(3, 6)$ and $B(-3, 4)$ are equal, prove that $3x + y = 5$
- 9) Find the values of x for which the distance between the points $P(2, -3)$ and $Q(x, 5)$ is 10 units $(8 \text{ or } -4)$
- 10) Given $A(-2, 3)$ and $AB = 10$ units. If ordinate of B is 9, find abscissa of B $(-10, 6)$
- 11) Find the coordinates of the point equidistant from three given points $A(5, 1)$, $B(-3, -7)$ and $C(7, -1)$ $(2, -4)$
- 12) If the point $p(x, y)$ is equidistant from the points $A(a + b, b - a)$ and $B(a - b, a + b)$, prove that $bx = ay$
- 13) Find the point on y -axis which is equidistant from the point $(5, -2)$ and $(-3, 2)$ $(0, -2)$
- 14) Find the point on x -axis which is equidistant from the points $(2, -5)$ and $(-2, 9)$ $(-7, 0)$
- 15) If the points $A(4, 3)$, and $B(x, 5)$ are on the circle with the centre. $O(2, 3)$, find the value of x $(x=2)$
- 16) The three consecutive vertices of a parallelogram are $(-2, 1)$, $(1, 0)$ and $(4, 3)$. Find the Coordinates of the fourth vertex $(1, 4)$
- 17) If $(1, 2)$, $(4, y)$, $(x, 6)$ and $(3, 5)$ are the vertices of a parallelogram taken in order, find the value of x and y $(x=6, y=3)$
- 18) Find the value of k for which the points $(7, -2)$, $(5, 1)$, and $(3, k)$ are collinear. $(k=4)$
- 19) Find the value of m , for which the points with co-ordinates $(3, 5)$, $(m, 6)$ and $[1/2, 15/2]$ are collinear $(m=2)$
- 20) Find a relation between x and y , if (x, y) , $(1, 3)$ and $(8, 0)$ are collinear $(3x + 7y = 24)$
- 21) If the points $(-2, 1)$, (a, b) and $(4, -1)$ are collinear and $a - b = 1$, then find the values of a and b $(a=1, b=0)$
- 22) Check whether the points $(4, 5)$, $(7, 6)$ and $(6, 3)$ are collinear.
- 23) Show that the point $P(-4, 2)$ lies on the line segment joining the points $A(-4, 6)$ and $B(-4, -6)$
- 24) If $P(x, y)$ is any point on the line joining the points $A(a, 0)$, $B(0, b)$, then show that $\frac{x}{a} + \frac{y}{b} = 1$
- 25) If $A(-5, 7)$, $B(-4, -5)$, $C(-1, -6)$ and $D(4, 5)$ are the vertices of a quadrilateral, find the area of the quadrilateral ABCD.
- 26) ABCDE is polygon whose vertices are $A(-1, 0)$, $B(4, 0)$, $C(4, 4)$, $D(0, 7)$ and $E(-6, 2)$. Find the area of the polygon
- 27) Using $A(4, -6)$, $B(3, -2)$ and $C(5, 2)$, verify that a median of the ΔABC divides it into two triangles of equal areas
- 28) The coordinates of A, B, C are $(3, 4)$, $(5, 2)$, (x, y) respectively. If area of $\Delta ABC = 3$, show that $x + y = 10$
- 29) The coordinates of the vertices of ΔABC are $A(4, 1)$, $B(-3, 2)$ and $C(0, k)$. Given that the area of ΔABC is 12 unit^2 , Find the Value of k $(k = -13/7)$
- 30) The points $A(2, 9)$, $B(a, 5)$, $C(5, 5)$ are the vertices of a triangle ABC right angled at B . Find the value of a and hence the area of ΔABC $(a=2, \text{area} = 6 \text{ sq units})$
- 31) If point $P(1/2, y)$ lies on the line segment joining two points $A(3, -2)$ and $B(-7, 9)$, then find the ratio in which P divides AB . Also find the value of y
- 32) Find the ratio in which the point $(2, y)$ divides the line segment joining the points $A(-2, 2)$ and $B(3, 7)$ $(4:1)$
- 33) Find the ratio in which the line $2x + y - 5 = 0$ divides the line segment joining $A(2, -3)$ and $B(3, 9)$ $(2:5)$
- 34) Determine the ratio in which the line $3x + 4y - 9 = 0$ divides the line segment joining the points $(1, 3)$ and $(2, 7)$ $(k = -6/25)$
- 35) Find the ratio in which the line segment joining the points $(1, -3)$ and $(4, 5)$ is divided by x -axis
- 36) If P divides the join of $A(-2, -2)$ and $B(2, -4)$ such that $AP/AB = 3/7$, find the coordinates of P $(-2/7, -20/7)$
- 37) Find the coordinates of the points which divide the line segment joining $A(2, -3)$ and $B(-4, -6)$ into three equal parts
- 38) Find the length of medians of triangle whose vertices are $A(-1, 3)$, $B(1, -1)$, and $C(5, 1)$
- 39) If the midpoint of the segment joining $A(a, b+1)$, and $B(a+1, b+2)$ is $C(3/2, 5/2)$ Find a and b $(a=1, b=1)$
- 40) The coordinates of one end point of a diameter of a circle are $(4, -1)$ and the coordinates of the centre of the circle are $(1, -3)$. Find the coordinates of the other end of the diameter $(-2, -5)$
- 41) The centre of a circle is $(2a - 1, 7)$ and it passes through the point $(-3, -1)$. If the diameter of the circle is 20 units, then find the value of a $(-4, 2)$
- 42) Determine the value of a if $AB = BC$, where A, B, C are the points $(-5, 1)$, $(0, 5)$ and $(a, 1)$ respectively (± 5)

- 43) A (5, -1), B (-1, 8) and C (-3, -2) are the vertices of triangle ABC. E and F are the midpoints of the sides AB and AC Respectively.
Show that $EF = \frac{1}{2} BC$
44. The area of the Δ formed by the points A(a, 0), O(0,0) and B(0, b) is
 a) ab b) $\frac{1}{2} ab$ c) $\frac{1}{2} a^2 b^2$ d) $\frac{1}{2} b^2$
45. The line segment joining the points A(-2, -3) and B(2, -1) is divided by the y axis in the ratio
 a) 1 : 2 b) 2 : 1 c) 1 : 1 d) 1 : 3
46. If P (a/2, 4) is the midpoint of the line segment joining the points A(-6, 5) and B(-2, 3), then the value of a
 a) - 8 b) 3 c) - 4 d) 4
47. If A and B are the points (- 6 , 7) and (- 1, - 5) , then the distance 2AB is equal to
 a) 13 b) 26 c) 169 d) 238
48. The midpoint of segment AB is the point P(0,4) . If the coordinates of B are (-2, 3) then the coordinates of A are
 a) (2, 5) b) (-2, -5) c) (2 , 9) d) (-2 , 11)
49. If A(1, 3) , B(- 1, 2) ,C(2 , 5) and D(x, 4) are the vertices of a parallelogram ABCD, then the value of x is
 a) 3 b) 4 c) 0 d) 3/2