

CLASS: X

SUB: Mathematics

TOPIC: Coordinate Geometry

- 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 $(4, -1)$, $(6, 0)$, $(7, 2)$ and $(5, 1)$ are the vertices of a rhombus. Is it a square?
- 4) Show that the following points are the vertices of a right angled isosceles triangle: $(1, 2)$, $(1, 5)$ and $(4, 2)$
- 5) Find a relation between x and y such that the point (x, y) is equidistant from the points $(7, 1)$ and $(3, 5)$ ($x - y = 2$)
- 6) If the distance of $P(x, y)$ from the points $A(3, 6)$ and $B(-3, 4)$ are equal, prove that $3x + y = 5$
- 7) Find the values of x for which the distance between the points $P(2, -3)$ and $Q(x, 5)$ is 10 units (8 or -4)
- 8) Given $A(-2, 3)$ and $AB = 10$ units. If ordinate of B is 9, find abscissa of B (-10, 6)
- 9) Find the coordinates of the point equidistant from three given points $A(5, 1)$, $B(-3, -7)$ and $C(7, -1)$ (2, -4)
- 10) If the point $p(x, y)$ is equidistant from the points $A(a + b, b - a)$ and $B(a - b, a + b)$, prove that $b x = a y$
- 11) Find the point on y -axis which is equidistant from the point $(5, -2)$ and $(-3, 2)$ (0, -2)
- 12) Find the point on x -axis which is equidistant from the points $(2, -5)$ and $(-2, 9)$ (-7, 0)
- 13) 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 ($x = 2$)
- 14) The three consecutive vertices of a parallelogram are $(-2, 1)$, $(1, 0)$ and $(4, 3)$. Find the Coordinates of the fourth vertex (1, 4)
- 15) Find the value of k for which the points $(7, -2)$, $(5, 1)$, and $(3, k)$ are collinear. ($k = 4$)
- 16) Find the value of m , for which the points with co-ordinates $(3, 5)$, $(m, 6)$ and $[1/2, 15/2]$ are collinear ($m = 2$)
- 17) Find a relation between x and y , if (x, y) , $(1, 3)$ and $(8, 0)$ are collinear ($3x + 7y = 24$)
- 18) If the points $(-2, 1)$, (a, b) and $(4, -1)$ are collinear and $a - b = 1$, then find the values of a and b ($a = 1, b = 0$)
- 19) Check whether the points $(4, 5)$, $(7, 6)$ and $(6, 3)$ are collinear.
- 20) 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.
- 21) 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
- 22) 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
- 23) The coordinates of A, B, C are $(3, 4)$, $(5, 2)$, (x, y) respectively. If area of $\Delta ABC = 3$, show that $x + y = 10$
- 24) 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 ($k = -13/7$)
- 25) 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)
- 26) 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)
- 27) 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)
- 28) Determine the ratio in which the line $3x + 4y - 9 = 0$ divides the line segment joining the points $(1, 3)$ and $(2, 7)$ ($k = -6/25$)
- 29) Find the length of medians of triangle whose vertices are $A(-1, 3)$, $B(1, -1)$, and $C(5, 1)$
- 30) 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 ($a = 1, b = 1$)
- 31) 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)
- 32) If $P(x, y)$ is any point on the line joining the points $A(a, 0)$, $B(0, b)$, then show that $\frac{x}{a} + \frac{y}{b} = 1$
- 33) 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)
- 34) Determine the value of a if $AB = BC$, where A, B, C are the points $(-5, 1)$, $(0, 5)$ and $(a, 1)$ respectively (± 5)
- 35) $A(5, -1)$, $B(-1, 8)$ 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 $EF = \frac{1}{2} BC$

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