# MATHS

# BOOKS - PATHFINDER MATHS (BENGALI ENGLISH)

# RECTANGULAR CO-ORDINATES

**Question Bank**

**1.** The points (-2, -5), (2, -2), (8, a) are collinear, find the value of a

**2.** A triangle with vertices (4,0),(-1,-1),(3,5) show that triangle is isosceles and right angled.

**3.** Find the condition If the segment joining the points (a,b) and (c,d) subtends a right angle at the origin

**4.** If $t_1, t_2$ and $t_3$ are distinct, the points $\left(t_1, 2at_1 + at_1^3\right), \left(t_2, 2at_2 + at_2^3\right), \left(t_3, 2at_3 + at_3^3\right)$ are collinear then show that $t_1 + t_2 + t_3 = 0$.

**5.** If A = $\left(t^2, 2t\right)$ and $B = \left(\dfrac{1}{t^2}, -\dfrac{2}{t}\right)$ and S = (1,0), then show that $\dfrac{1}{SA} + \dfrac{1}{SB} = 1$

**6.** The centroid of the triangle formed by the points $(1,a)$, $(2,b)$ and $(c^2, -3)$ by which condition the points lies on the x-axis

**7.** A line is of the length 10 units and one end is at $(2,-3)$. If the abscissa of the other end is 10, then find its ordinate.

**8.** Three points $(0,0), (3, \sqrt{3}), (3, \lambda)$ form an equilateral triangle. Then find the value of $\lambda$.

**9.** The point (22,23) divides the join of P(7,5) and Q externally in the retio 3:5, then what is co-ordinate of Q.

**10.** Find out in centre of the triangle formed by (1,2),(3,4) and (2,3).

**11.** The medians of a triangle meet at (0,-3) and two vertices are at (-1,4)(5,2). Then what is the third vertex.

**12.** The points $(-a, -b), (a, b), (0, 0)$ and $(a^2, ab), a \neq 0, b \neq 0$ are always

**13.** Find the area of the triangle with vertices at the points (a,b+c),(b,c+a),(c,a+b).

**14.** Find the area of the triangle with vertices at (-4,1),(1,2),(4,-3).

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**15.** The points A(-2,3),B(3,4),C(x,y) form an equilateral triangle. Find x and y.

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**16.** Find the ratio in which the segment joining the points (5,6) and (2,-3) is divided by

X -axis

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**17.** Find the ratio in which the segment joining the points (5,6) and (2,-3) is divided by

Y -axis

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**18.** Prove that the points A(-2,-1) B(1,0), C(4,3) and D(1,2) are the vertices of a parallelogram. Is it a rectangle ?

**19.** Find the equation of the lines joining the centroid G with the vertices of the $\triangle ABC$, where A(2,3),B(-4,5),C(3,-4).

**20.** Find the equation of the right bisector of the line joining (1,1) and (3,5).

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**21.** If the area of the quadrilateral whose angular points taken in order are (1,2),(-5,6), (7,-4),(k,-2) be zero, prove that k=3.

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**22.** Find the co-ordinates of the point which divided the join of P(5,-2) and Q(9,6).

internally in ratio 3:1

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**23.** Find the co-ordinates of the point which divided the join of P(5,-2) and Q(9,6).

externally in ratio 3:1

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**24.** Show that the quadrilateral with vertices A(3,2), B(0,5), C(-3,2), D(0,-1) is a square.

**25.** A and B are points (3,4) and (5,-2), find the co-ordinate of the point P such that $|PA|$= $|PB|$ and area of $\Delta PAB = 10$.

**26.** Find the ratio in which the line joining (-5,1) and (1,-3) divides the line joining (3,4) and (7,8). Also find the co-ordinates of the point of intersection.

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**27.** Find the centre and radius of the circumcircle of the triangle whose vertices are A(1,7), B(7,-1), C(8,6).

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