



MATHS

COORDINATE GEOMETRY

All Questions

1. What is co-ordinate geometry ?



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2. Regular coordinate axes



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3. Cartesian coordinate of a point



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4. Quadrant



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5. Some Important points



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6. Theorem: The distance between two points

$P(x_1; y_1)$ and $Q(x_2; y_2)$ is given by $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$



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7. If the point $(x; y)$ is equidistant from the points $(a + b; b - a)$ and $(a - b; a + b)$

prove that $bx = ay$



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8. The coordinates of the point which divides the line segment joining the points $(x_1; y_1)$ and $(x_2; y_2)$ internally in the ratio $m:n$ are given by

$$\left(x = \frac{mx_2 + nx_1}{m + n}; y = \frac{my_2 + ny_1}{m + n} \right)$$



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9. (i) Find the coordinates of the point which divides the line segment joining the points $(6;3)$ and $(-4;5)$ in the ratio $3:2$ internally



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10. (iv) The three vertices of a parallelogram are taken in order $(-1;0)$; $(3;1)$ and $(2;2)$ respectively. Find the coordinates of 4th vertex.



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11. Theorem: Prove that the coordinates of centroid of the triangle whose coordinates are

$(x_1; y_1); (x_2; y_2)$ and $(x_3; y_3)$ are

$$\left(\frac{x_1 + x_2 + x_3}{3}; \frac{y_1 + y_2 + y_3}{3} \right)$$



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12. If the coordinates of the midpoints of the sides of a triangle are $(1;1);(2;-3)$ and $(3;4)$. Find its centroid.



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13. Theorem : The area of a triangle the coordinates of whose vertices are $(x_1; y_1)$; $(x_2; y_2)$ and $(x_3; y_3)$ is $\frac{1}{2}|(x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2))|$



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14. Find the Area of polygon



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15. Find area of triangle formed by the points

$A(5;2); B(4;7)$ and $C(7;-4)$



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16. Find area of quadrilateral ABCD whose

vertices are respectively

$A(1; 1); B(7; - 3); C(12; 2)$ and $D(7;21)$



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17. Prove that $(a; b + c); (b; a + c); (c; a + b)$ are collinear.



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18. Some Useful Points



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19. (ii) In what ratio does the x axis divide the line segment joining the points

$(2; -3)$ and $(5; 6)$. Find the coordinate of a point of intersection



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20. (iii) Prove that the points $(-2; -1)$; $(1; 0)$; $(4; 3)$ and $(1; 2)$ are the vertices of the parallelogram .

Is this a rectangle ?



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21. For what value of x will the points $(x;-1);(2;1)$ and $(4;5)$ lie on a line ?



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22. If the vertices of a triangle having integral coordinates . Prove that triangle can't be equilateral .



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