MATHS

BOOKS - CHETANA MATHS (MARATHI ENGLISH)

CO-ORDINATE GEOMETRY

Example

1. Points A(-6,2) and B(0,-3) are in which Quadrant/axis?

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2. $x = 3$ and $y - 4 = 0$, which equation is parallel to X-axis?

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3. Points with both co-ordinates positive lie in ..... quadrant.

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4. Points with both negative co-ordinates lie in which quadrant?

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5. Write equation of line PQ parallel to X-axis and 1 unit above it.

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6. Write equation of line MN parallel to Y-axis and 6 units to the left of Y-axis.

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7. What are X-co-ordinates of each point on Y-axis?

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8. What are co-ordinates of origin?

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9. What is distance between X-axis and line $y = -5$?

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10. What are X-co-ordinates of each point on Y-axis?

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11. How many lines are there which are parallel to the Y-axis and having distance 5 units?

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12. Find distance between X-axis and line $y = -4$.

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13. $A(-5, -3)$ and $B(6, -8)$ are in which quadrants?

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14. Point M(-3,-2) is on line parallel to x-axis. Write equation of line.

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15. What is the distance between Y-axis and line $x = 4$?

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16. (4,-7) lies in which quadrant?

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17. In which quadrant does point (-6,-9) lie?

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18. In which quadrant or axis does point (-4,0) lie?

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19. In which quadrant or axis does point (0,8) lie?

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20. State whether $x = 4$ is parallel to X-axis or Y-axis.

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21. State whether $y - 3 = 0$ is parallel to X-axis or Y-axis.

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22. State whether $x + 8 = 0$ is parallel to X-axis or Y-axis.

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23. State whether $y = -9$ is parallel to X-axis or Y-axis?

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24. Write equation of line parallel to Y-axis and on its right side at distance of 6 units.

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25. How many lines are there which are parallel to X-axis and having distance of 5 units from it?

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26. State whether graph of $x = 5$ is parallel to X-axis or Y-axis?

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27. State whether $y - 3 = 0$ graph is parallel to X-axis or Y-axis.

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28. State whether $x + 8 = 0$ graph is parallel to X-axis or Y-axis.

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29. State whether $y = -10$ graph is parallel to X-axis or Y-axis.

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30. What are names of horizontal and vertical lines drawn to determine the position of any point in plane?

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31. Find the distance between each of the following pairs of the points: A(2,3), B(4,1)

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32. Find the distance between each of the following pairs of the points:(ii) P(-5,-7), Q(-1,3)

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33. Find the distance between each of the following pairs of the points.(iii)R(0,-3), S(0,5/2)

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34. Find the distance between each of the following pairs of the points. (iv) L(5,-8), M(-7,-3)

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35. Find the distance between each of the following pairs of the points.(v) T(-3,6), R(9,-10)

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36. Find the distance between each of the following pairs of the points.(vi) W(-7/2,4), X(11,4)

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37. Find the distance between the following pairs of points (i)A(a,0),B(0,a).

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38. Find the distance between the following pairs of points (ii)P(-6,-3),Q(-1,9)

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39. Find the distance between the following pairs of points (iii)R(-3a,a),S(a,-2a)

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40. Find the point on X-axis which is equidisant from A(-3,4) and B(1,-4)

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41. Find a point on X-axis which is equidisant from P(2,-5) and Q(-2,9).

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42. Verify that points P(-2,2),Q(2,2) and R(2,7) are vertices of a right angled triangle.

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43. A(-4,-7),B(-1,2),C(8,5) and D(5,-4) are the vertices of rhombus ABCD.

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44. Find x,if distance between points L(x,7) and M(1,15) is 10.

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45. Show that the points A(1,2), B(1,6) and C(1+ $2\sqrt{3}$,4) are the vertices of an equilateral triangle.

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46. In the following example, can the segment joining the given points form a triangle? If triangle is formed, state the type of the triangle considering sides of the triangle. L(6,4),M(-5,-3),N(-6,8).

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47. In the following examples,can the segment joining the given points form a triangle?If triangle is formed,state the type of the

triangle considering sides of the triangle.

(ii)P(-2,-6),Q(-4,-2),R(-5,0).

48. In the following examples,can the segment joining the given points form a triangle?If triangle is formed,state the type of the triangle considering sides of the triangle.

(iii)A(sqrt 2,sqrt 2),B(-sqrt 2,-sqrt 2),C(-sqrt 6,sqrt 6).

49. Show that A(4,-1), B(6,0), C(7,-2) and D(5,-3) are vertices of a square.

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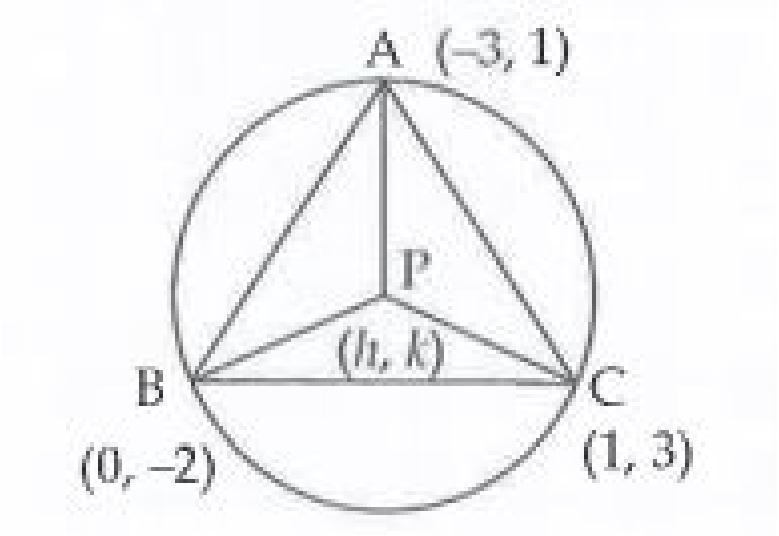
50. Find the coordinates of circumcentre of a triangle whose vertices are (-3,1),(0,-2) and (1,3).



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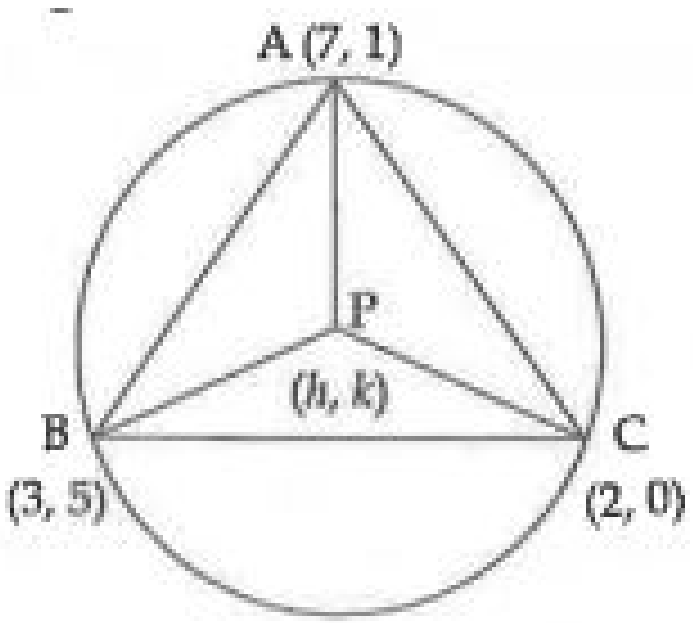
51. Find the co-ordinates of circumcentre and radius of a circumcircle of $\triangle ABC$,if

A(7,1),B(3,5) and C(2,0) are given.



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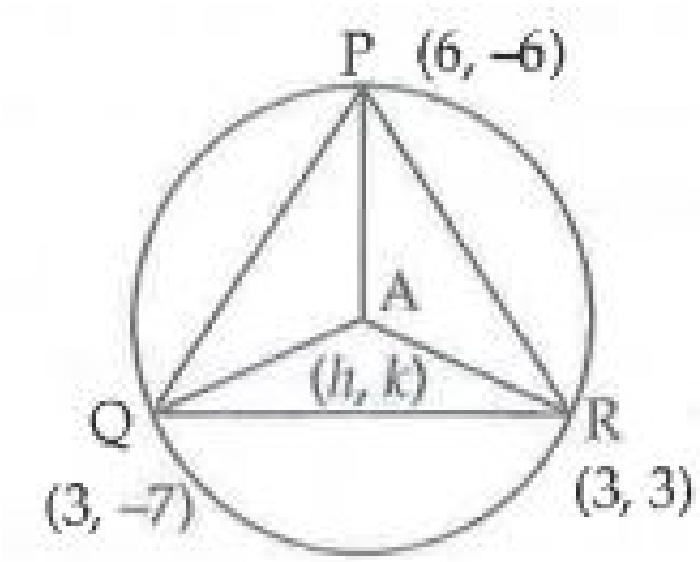
52. Find the co-ordinates of the center of the circle passing through the point. P(6,-6),Q(3,-7)

and R(3,3).



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53. Find the co-ordinates of point P if P divides the line segment joining the points A(-1,7) and B(4,-3) in the ratio 2:3.

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54. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b.(i) P(-3,7), Q(1,-4), a:b=2:1.

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55. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b.(ii)P(-2,-5), Q(4,3), a:b=3:4.

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56. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b.(iii)P(2,6), Q(-4,1), a:b=1:2.


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57. Find the ratio in which point T(-1,6) divides the line segment joining the points P(-3,10) and Q(6,-8).


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58. Find the ratio in which point P(k,7) divides the segment joining A(8,9) and B(1,2). Also find k.

59. Find the ratio in which the line segment joining the points A(3,8) and B(-9,3) is divided by the Y-axis.

60. Given A(4,-3), B(8,5). Find the co-ordinates of the point that divides segment AB in the ratio 3:1.

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61. Find the coordinates of the midpoint of the segment joining the points (22,20) and (0,16).

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62. Point P is the centre of the circle and AB is a diameter.Find the co-ordinates of point B if co-ordinates of point A and P are (2,-3) and (-2,0) respectively.

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63. Find the coordinates of the midpoint of the line segment joining P(0,6) and Q(12,20).

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64. Show that points P(2,-2), Q(7,3), R(11,-1) and S(6,-6) are the vertices of a parallelogram.

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65. Find the co-ordinates of points of trisection of the line segment AB with A(2,7) and B(-4,-8).

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66. If A(-14,-10),B(6,-2) is given,find the co-ordinates of the points which divide segment AB into four equal parts.

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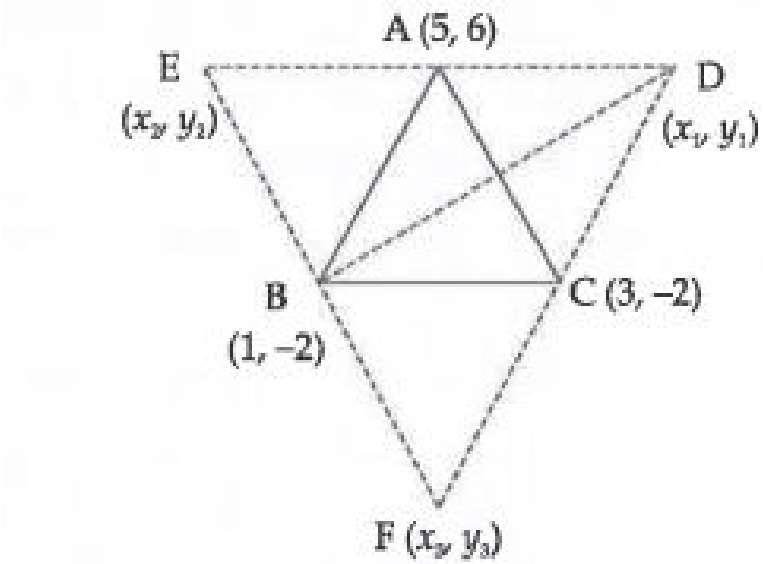
67. Find the possible pairs of co-ordinates of the fourth vertex D of the parallelogram,if

three of its vertices are A(5,6),B(1,-2) and C(3,-2)



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68. In each of the following vertices of a triangle are given. Find the coordinates of centroid of each triangle (i) (-7,6), (2,-2), (8,5)

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69. In each of the following vertices of a triangle are given. Find the coordinates of centroid of each triangle (ii) (3,-5),(4,3),(11,-4)

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70. In each of the following vertices of a triangle are given. Find the coordinates of centroid of each triangle (iii) (4,7),(8,4),(7,11).

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71. In $\triangle ABC$,G(-4,-7) is the centroid of $\triangle ABC$.If A(-14,-19) and B(3,5),then find co-ordinates of C.

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72. A(h,-6),B(2,3) and C(-6,k) are the co-ordinates of vertices of a triangle whose centroid is G(1,5). Find h and k.

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73. Find the co-ordinates of centroid of the triangles if points D(-7,6),E(8,5) and F(2,-2) are the mid points of the sides of that triangle.

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74. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines (i)45°

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75. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines (ii)60°

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76. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines(iii) 90°

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77. Find the slope of line passing through the given points. (i) A(2,3) and B(4,7)

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78. Find the slope of line passing through the given points. (ii) P(-3,1) and Q(5,-2)

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79. Find the slope of line passing through the given points.(iii) C(5,-2) and D(7,3)

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80. Find the slope of line passing through the given points.(iv) L(-2,-3) and M(-6,-8).

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81. Find the slope of line passing through the given points.(v) E(-4,-2) and F(6,3).

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82. Find the slope of line passing through the given points.(vi) T(0,-3) and S(0,4).

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83. Determine whether the points are collinear.

(i)A(1,-3), B(2,-5) and C(-4,7)

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84. Determine whether the points are collinear. (ii) L(-2,3),M(1,-3),N(5,4)

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85. Determine whether the points are collinear.

(iii) R(0,3),D(2,1) and S(3,-1)

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86. Determine whether the points are collinear.

(iv) P(-2,3),Q(1,2),R(4,1)

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87. Determine whether following points are collinear.(i) A(-1,-1),B(0,1),C(1,3)

88. Determine whether following points are collinear.(ii) D(-2,-3),E(1,0),F(2,1)

89. Determine whether following points are collinear.(iii) L(2,5),M(3,3),N(5,1)

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90. Determine whether following points are collinear.(iv) P(2,-5),Q(1,-3),R(-2,3)

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91. Determine whether following points are collinear.(v) R(1,-4),S(-2,2),T(-3,4).

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92. Determine whether following points are collinear.(vi) A(-4,4),K(-2,5/2),N(4,-2).

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93. Determine whether the given points are collinear.(i) A(0,2),B(1,-0.5),C(2,-3)

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94. Determine whether the given points are collinear.(ii) P(1,2),Q(2,8/5),R(3,6/5).

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95. Determine whether the given points are collinear.(iii) L(1,2),M(5,3),N(8,6).

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96. If A(1,-1), B(0,4), C(-5,3) are vertices of a triangle, then find the slope of each side.

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97. Show that A(-4,-7), B(-1,2), C(8,5) and D(5,-4) are the vertices of a parallelogram.

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98. Find k, if R(1,-1),S(-2,k) and slope of line RS is -2.

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99. Find k, if B(k,-5),C(1,2) and slope of the line is 7.

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100. Find k, if $PQ \mid\mid RS$ and P(2,4), Q(3,6), R(3,1) and S(5,k).

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101. Find k, if the line passing through points P(-12,-3) and Q(4,k) has slope $\frac{1}{2}$.

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102. Show that the line joining the points A(4,8) and B(5,5) is parallel to the line joining the points C(2,4) and D(1,7).

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103. Show that the points P(1,-2), Q(5,2), R(3,-1), S(-1,-5) are the vertices of a parallelogram.

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104. Show that the $\square PQRS$ formed by P(2,1),Q(-1,3),R(-5,-3),S(-2,-5) is a rectangle.

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105. Find the type of the equilateral if points A(-4,-2),B(-3,-7),C(3,-2) and D(2,3) are joined serially.

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106. Find the slope of the diagonals of a quadrilateral with vertices A(1,7), B(6,3), C(0,-3) and D(-3,3).

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Exercise

1. Seg AB is parallel to Y-axis and co-ordinates of point A are (1,3), then co-ordinates of point B can be.....a) (3,1) b) (5,3) c) (3,0) d) (1,-3)

A. (3,1)

B. (5,3)

C. (3,0)

D. (1,-3)

Answer:

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2. Out of the following, point.....lies to the right of the origin on X-axis. a) (-2,0) b) (0,2) c) (2,3) d) (2,0)

A. (-2,0)

B. (0,2)

C. (2,3)

D. (2,0)

Answer:

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3. Distance of point (-3,4) from the origin is.....a) 7 b) 1 c) 5 d) -5

A. 7

B. 1

C. 5

D. -5

Answer:

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4. A line makes an angle of 30° with the positive direction of X-axis.so the slope of the line is.....a) $\frac{1}{2}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{1}{\sqrt{3}}$ d) $\sqrt{3}$

A. $\frac{1}{2}$

B. $\frac{\sqrt{3}}{2}$

C. $\frac{1}{\sqrt{3}}$

D. $\sqrt{3}$

Answer:

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5. What is the slope of line with inclination 60° ? a) $\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) 1 d) 0

A. $\sqrt{3}$

B. $\frac{1}{\sqrt{3}}$

C. 1

D. 0

Answer:

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6. Find the inclination of a line with slope 1. a) 60° b)45° c)90° d)can't say

A. 60°

B. 45°

C. 90°

D. can't say

Answer:

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7. Line l is parallel to line m. If slope of line l is $\frac{1}{2}$ the slope of line m is.....a)-2 b)0 c)$\frac{1}{2}$ d)can't say

A. -2

B. 0

C. $\frac{1}{2}$

D. can't say

Answer:

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8. What is the slope of line passing through points (4,6) and (1,-2)? a) $\frac{4}{3}$ b) $\frac{3}{4}$ c) $\frac{8}{5}$ d) $\frac{8}{3}$

A. $\frac{4}{3}$

B. $\frac{3}{4}$

C. $\frac{8}{5}$

D. $\frac{8}{3}$

Answer:

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9. Slope of X-axis is.....a)0 b)1 c) -1 d) Not defined

A. 0

B. 1

C. -1

D. Not defined

Answer:

10. Slope of Y-axis is.....a)0 b)1 c) -1 d) Not defined

A. 0

B. 1

C. -1

D. Not defined

Answer:

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11. Distance of point A(7,24) from the origin is.....a)17 b) -17 c)25 d) can not be found

A. 17

B. -17

C. 25

D. can not be found

Answer:

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12. Find the co-ordinates of the point P which bisects seg having co-ordinates (3,2) and(5,-2)

a) (-3,5) b) (0,4) c) (4,0) d) (5,-3)

A. (-3,5)

B. (0,4)

C. (4,0)

D. (5,-3)

Answer:

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13. Find the co-ordinates of the point which divides line seg QR in the ratio 1:2 where Q(1,1) and R(1,-2). a) (-5,3) b) (1,0) c) (-3,2) d) (4,0)

A. (-5,3)

B. (1,0)

C. (-3,2)

D. (4,0)

Answer:

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14. In what ratio does the point (1,6) divide the line segment joining the points (3,6) and (-5,6)? a) 1 : 3 b) 2 : 3 c) 3 : 1 d) 3 : 2

A. $1:3$

B. $2:3$

C. $3:1$

D. $3:2$

Answer:

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15. Find the distance between the given points.

(i) A(3,-4), B(-5,6)

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16. Find the distance between the given points.

(ii) P(10,-8), Q(-3,-2)

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17. Find the distance between the given points.

(iii) K(0,-5), L(-5,0)

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18. Find the distance between the given points.

(iv) I(3.5,6.8), J(1.5,2.8)

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19. Show that the points (5,11) is equidistant from the points (-5,13) and (3,1)

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20. Check whether points (3,3),(-4,-1) and (3,-5) are the vertices of an issosceles triangle.

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21. Find the relation between x and y, where point (x,y) is equidistant from (2,-4) and (-2,6).

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22. Show that the point (0,9) is equidistant from the point (-4,1) and (4,1).

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23. Find the coordinates of the point on Y-axis which is equidistant from the points M(6,5) and point N(-4,3).

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24. Using distant formula,check whether following points are collinear or not.

(i)L(4,-1),M(1,-3),N(-2,-5)

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25. Using distant formula,check whether following points are collinear or not. (ii)A(-5,4),B(-2,-2),C(3,-12)

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26. Find the distance of point Z(-2.4,-1) from the origin.

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27. Show that the points A(4,7),B(8,4) and C(7,11) are the vertices of a right angled triangle.

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28. Show that A(4,-1), B(6,0), C(7,-2) and D(5,-3) are vertices of a square.

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29. Show that the points (2,4),(2,6) and $\left(2+\sqrt{3}, 5\right)$ are the vertices of an equilateral triangle.

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30. Show that points A(1,-5),B(-4,-8),C(-1,-13) and D(4,-10) are the vertices of a rhombus.

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31. Find the coordinates of the point P which divides line segment QR in the ratio m:n in the following examples (i) Q(5,8), R(4,-4), m:n=2:1.


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32. Find the coordinates of the point P which divides line segment QR in the ratio m:n in the following examples (i) Q(5,8), R(4,-4), m:n=2:1.


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33. Find the coordinates of the point P which divides line segment QR in the ratio m:n in the following examples(iii)Q(1,7),R(-3,1),m:n=1:2.

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34. Find the coordinates of the point P which divides line segment QR in the ratio m:n in the following examples(iv)Q(6,-5),R(-10,2),m:n=3:4.

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35. Find the coordinates of the point P which divides line segment QR in the ratio m:n in the following examples (v) Q(5,8), R(-7,-8), m:n=4:1.

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36. Find the coordinates of the midpoint of seg QR, if Q(2.5,-4.3) and R(-1.5,2.7).

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37. Find the coordinates of the midpoint P of seg AB, if A(3.5,9.5) and B(-1.5,0.5).

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38. In what ratio does the point (1,3) divide line segment joining the points (3,6) and (-5,-6)?

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39. Find the lengths of the median of ABC whose vertices are A(7,-3),B(5,3),C(3,-1).

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40. Show that the line segment joining the points (5,7), (3,9) and (8,6), (0,10) bisect each other.

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41. Segments AB and CD bisects each other at point M. If A(4,3), B(-2,5), C(-3,5), then find coordinates of D.

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42. Find the ratio in which the line segment joining the points (6,4) and(1,-7) is divided by X-axis.

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43. Find the coordinates of the points which divide the line segment joining the points(-2,2) and (6,-6) in four equal parts.

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44. Find the coordinates of the points which divide the segment AB into four equal parts,if A(5,7) and B(-3,-1).

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45. If A-P-Q-B, point P and Q trisects seg AB and A(3,1) , Q(-1,3), then find coordinates of points B and P.

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46. Find the coordinates of centroid G of Δ ABC,if (i) A(8,9), B(4,5), C(6,2)

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47. Find the coordinates of centroid G of Δ ABC, if (ii) A(11,8), B(-6,5), C(1,-28).

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48. The origin 'O' is the centroid of ΔABC in which A(-4,3), B(3,k) and C(h,5). Find h and k.

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49. Find the coordinates of the points dividing the segment joining A(-5,7) and B(11,-1) into four equal parts.

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50. Find the slope of a line which makes an angle with positive X-axis (i) 0°

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51. Find the slope of a line which makes an angle with positive X-axis(ii) 30°

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52. Find the slope of a line which makes an angle with positive X-axis(iii) 45°

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53. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines (ii)60°

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54. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines(iii) 90°

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55. Find the slope of the line passing through the points.(i) (-1,4), (3,-7)

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56. Find the slope of the line passing through the points.(ii) (5,5), (1,6)

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57. Find the slope of the line passing through the points.(iii) (1,7), (4,8)

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58. Find the slope of the line passing through the points.(iv)(4,8), (5,5)

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59. Find the slope of the line passing through the points.(v)(4,1), (2,-3)

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60. Find the slope of the line passing through the points.(vi)(4,4), (3,5)

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61. Using slope concept, check whether the following points are collinear.(i)(-2,-1),(4,0), (3,3)

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62. Using slope concept, check whether the following points are collinear.(ii)(-2,-3), (33/8,4), (5,5)

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63. Using slope concept, check whether the following points are collinear.(iii) (4,4), (3,5), (-1,-1)

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64. Using slope concept, check whether the following points are collinear.(iv)(2,10), (0,4), (3,13)

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65. Using slope concept, check whether the following points are collinear.(v)(5,0), (10,-3), (-5,6)

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66. Using slope concept, check whether the following points are collinear.(vi)(2,5), (5,7), (8,9)

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67. Find the value of k, if (5,k), (-3,1) and (-7,-2) are collinear.

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68. Find the value of k, if (2,1), (4,3) and (0,k) are collinear.

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69. Find the value of k, if the slope of the line passing through (2,5) and (k,3) is 2.

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70. P(3,4), Q(7,2) and R(-2,-1) are the vertices of ΔPQR. Write down the slope of each side of the triangle.

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71. Show that line joining (4,-1) and (6,0) is parallel to line joining (7,-2) and (5,-3).

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72. Show that $\square ABCD$ is a parallelogram,if A(-1,2),B(-5,-6),C(3,-2) and D(7,6).

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73. Show that P(3,4),Q(7,-2),R(1,1) and S(-3,7) are the vertices of a parallelogram.

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74. Distance of point (-3,4) from the origin is.....a) 7 b) 1 c) 5 d) -5

A. 7

B. 1

C. 5

D. -5

Answer:

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75. Line l is parallel to line m. If slope of line l is $\frac{1}{2}$ the slope of line m is.....a)-2 b)0 c)$\frac{1}{2}$ d)can't say

A. -2

B. 0

C. $\frac{1}{2}$

D. Cant say

Answer:

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76. Slope of a line is $\sqrt{3}$. Find its inclination.

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77. Find the distance between (2,3) and (4,1).

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78. Seg AB is a diameter of a circle with centre P(1,2). If A(-4,2), then find the co-ordinates of point B.

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79. If P-T-Q and P(-3,10), Q(6,-8) and T(-1,6), then find the ratio in which point T divides seg PQ.

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80. A(-7,6), B(2,-2) and C(8,5) are co-ordinates of vertices of $\triangle ABC$. Find the co-ordinates of centroid of $\triangle ABC$.

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81. Decide (2,10), (10,4) and (3,13) are collinear or not.

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82. Find k, if $PQ \mid\mid RS$ and P(2,4), Q(3,6), R(3,1) and S(5,k).

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83. Prove that $(\sqrt{2}, \sqrt{2}), (-\sqrt{2}, -\sqrt{2})$ and $(-\sqrt{6}, \sqrt{6})$ are the vertices of an equilateral triangle.

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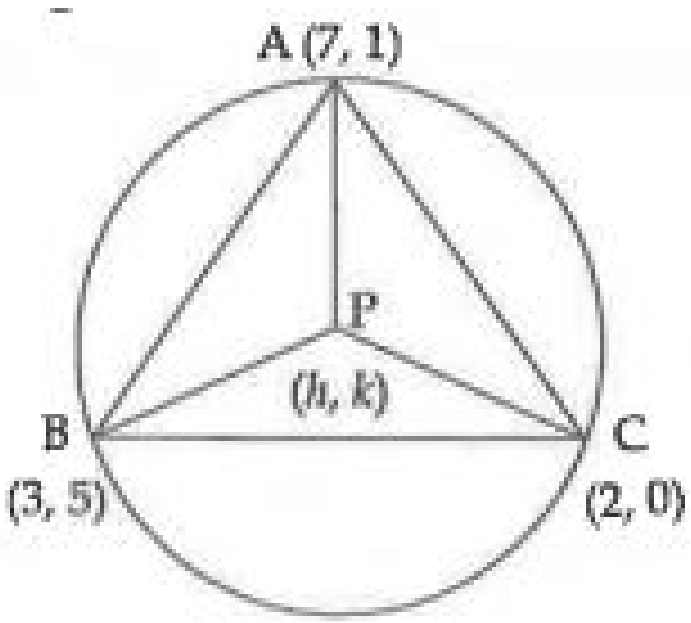
84. Find the co-ordinates of circumcentre and radius of a circumcircle of $\triangle ABC$,if

A(7,1),B(3,5) and C(2,0) are given.



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85. Find the possible co-ordinates of the fourth vertex of the parallelogram,if three of its vertices are (5,6),(1,-2) and (-3,2).

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86. Find the coordinates of the points which divide the line segment joining the points(-2,2) and (6,-6) in four equal parts.

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