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India's Number 1 Education App

MATHS

BOOKS - BAL BHARTI

CO-ORDINATE GEOMETRY

Solved Examples

1. Find the distance between the given points.

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

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2. Show that the points $(3, -2), (1, 0), (-1, -2)$ and $(1, -4)$ are concyclic.

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3. Find the value of k for which points $P(k, -1), Q(2, 1)$ and $R(4, 5)$ are collinear.

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4. 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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5. 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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6. $A(-3, -4), B(-5, 0), C(3, 0)$ are the vertices of ΔABC . Find the co-ordinates of the circumcenter of ΔABC.

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

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8. If P (5,-3) and Q(3,y) are the points of trisection of the line segment joining the points A (7,-2) and B (1,-5) . then y equals?

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9. 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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10. 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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11. 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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12. 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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13. 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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14. Find the coordinates of the midpoint of the segment joining the points (22,20) and (0,16).

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

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16. The equation of the line joining the points (-2,4,2) and (7,-2,5) is

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

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Practice Set 5 1

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

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

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

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

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

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

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7. Determine whether the points are collinear.

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

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8. Determine whether the points are collinear.

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

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9. Determine whether the points are collinear.

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

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10. Determine whether the points are collinear.

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

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

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

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

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

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16. 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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Practice Set 5 2

1. 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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2. 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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3. 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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4. 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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5. 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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6. 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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7. Find the ratio in which point P(k,7) divides the segment joining A(8,9) and B(1,2). Also find k.

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

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9. Find the co-ordinates of the circumcenter of the triangle whose vertices are $A(-2, 3), B(6, -1), C(4, 3)$

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10. Find the coordinates of centroid of a triangle whose vertices are (3, -5), (4,3), (11-4),

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11. Find the coordinates of centroid of a triangle whose vertices are (3, -5), (4,3), (11-4),

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12. 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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13. 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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14. 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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15. 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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16. 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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Practice Set 5 3

1. 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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2. 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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3. 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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4. Find the slope of line passing through the given points. (i) A(2,3) and B(4,7)

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

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

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

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

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

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

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

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

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

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

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

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16. 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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17. 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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18. Find k, if R(1,-1),S(-2,k) and slope of line RS is -2.

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

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20. 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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Problem Set 5 Fill In The Blanks

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: D

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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: D

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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: C

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

D. $\sqrt{3}$

Answer: C

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Problem Set 5

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

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

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

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

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

by the Y-axis.

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

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

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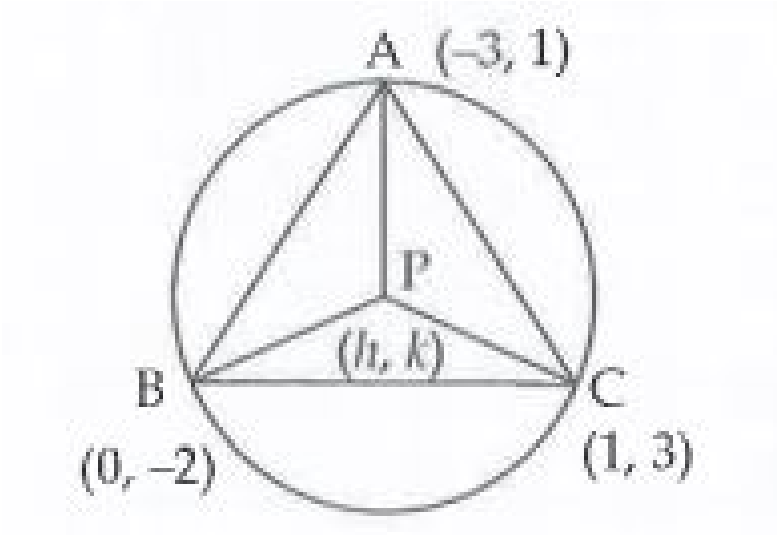
8. Find the distance between the following pairs of points (ii)P(-6,-3),Q(-1,9)

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

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



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11. 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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12. 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).

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

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15. 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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16. 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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17. 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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18. Find the equations of the sides of a triangle whose vertices are $A(-1, 8), B(4, -2)$ and $C(-5, -3)$

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19. Find the coordinates of centroid of a triangle whose vertices are (3, -5), (4,3), (11-4),

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

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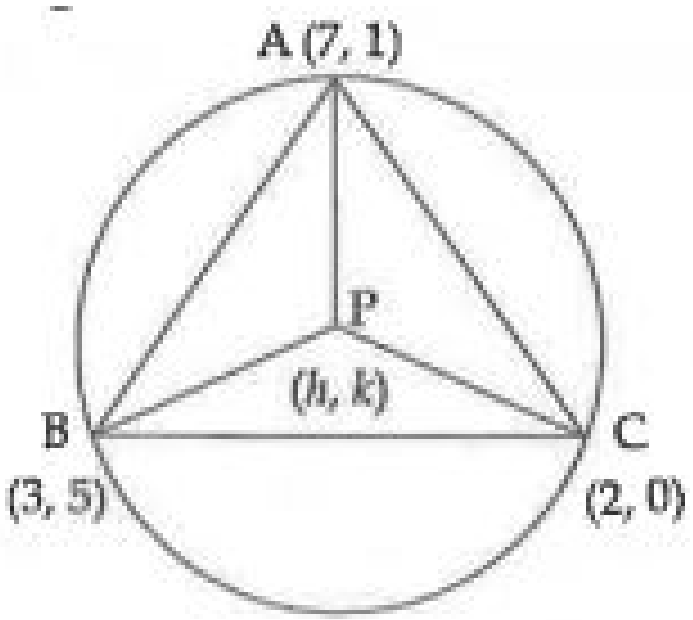
21. Find the co-ordinates of circumcentre and radius of a circumcircle of $\triangle ABC$,if A(7,1),B(3,5) and C(2,0) are given.



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22. 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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23. Find the area of quadrilateral whose vertices are:

$A(-3,1), B(-2,-2), D(1,4), C(3,-1)$

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24. The line segment AB is divided into five congruent parts at P ,Q ,R and S such that A-P-Q-R-S-B . If point Q (12,14) and S(4,18) are given , find the co-ordinates of A,P,R,B.

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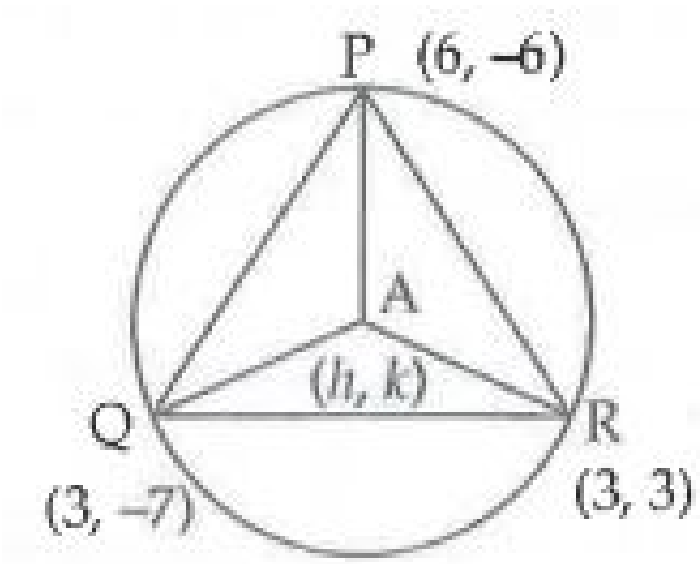
25. Find the co-ordinates of the center of the circle passing through the point. P(6,-6),Q(3,-7)

and R(3,3).



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

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

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27. 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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