MATHS

BOOKS - FULL MARKS MATHS (TAMIL ENGLISH)

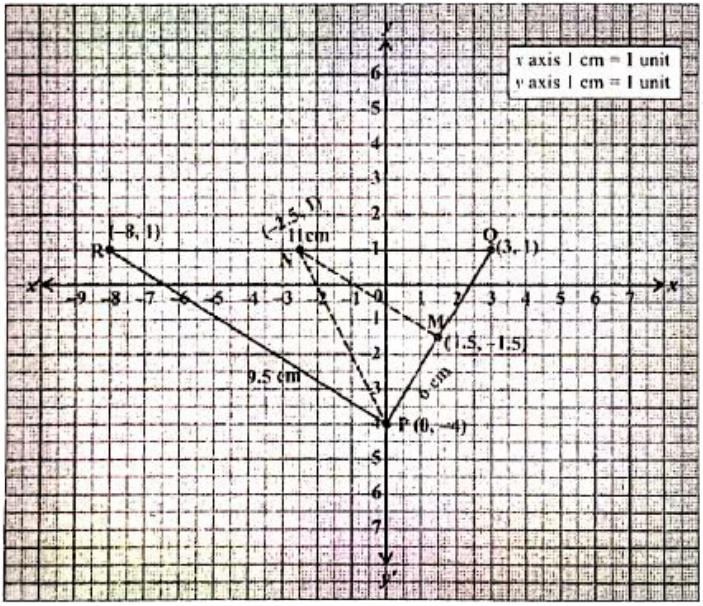
COORDINATE GEOMETRY

Progress Check

1. $A(0, 4), B(5, 0)$ and $C(-4, -7)$ are vertices of a triangle then its centroid will be at____.

Watch Video Solution

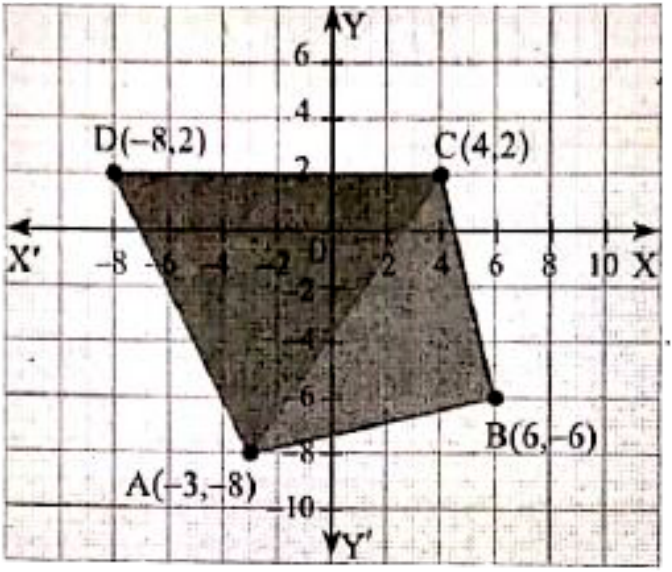
2. The vertices of $\triangle PQR$ are P(0,-4),Q(3,1) and R(-8,1)



Draw $\triangle PQR$ on a graph paper .

Watch Video Solution

3. Given a quadrilateral ABCD with vertices A(-3,-8),B(6,-6),C(4,2) and D(-8,2).



Find the area of $\triangle ABC$.

Watch Video Solution

4. Fill the missing boxes

S.No.	Points	Slope
1	$A(-a, b), B(3a, -b)$	
2	$A(2, 3), B(\ldots, \ldots)$	2
3		0
4		undefined

Watch Video Solution

5. Fill the details In respective boxes

Form	When to use?	Name
$y = mx + c$	Slope = m, Intercept = c are given	Slope intercept form
$\frac{y-y_1}{y_2-y_1} = \frac{x-x_1}{x_2-x_1}$	Two points $(x_1, y_1), (x_2, y_2)$ are given	Two points form
$\frac{x}{a} + \frac{y}{b} = 1$	The intercepts are given	Intercept form

Watch Video Solution

6. Fill the details in respective boxes

S.No.	Equations	Parallel or perpendicular
1.	$5x+2y+5=0$ $5x+2y-3=0$	
2.	$3x-7y-6=0$ $7x+3y+8=0$	

S.No.	Equations	Parallel or perpendicular
3.	$8x-10y+11=0$ $4x-5y+16=0$	
4.	$2y-9x-7=0$ $27y+6x-21=0$	

Watch Video Solution

Thinking Corner

1. If the area of a quandrilateral formed by the points (a,a),(-a,a),(a,-a) and (-a,-a), where $a \neq 0$ is 64 square units , then identify the type of the quadrilateral.

Watch Video Solution

Exercise 5 1

1. Find the area of the triangle formed by the points.

$(1, -1), (-4, 6), (-3, -5)$

Watch Video Solution

2. Determine whether the sets of points at collinear?

$(a, b+c), (b, c+a)$ and $(c, a+b)$

Watch Video Solution

3. Vertices of given triangles are taken in order and their areas are provided aside. In each case, find the value of 'p'.

S.No.	Vertices	Area(sq. units)
(i)	(0,0),(p,8),(6,2)	20
(ii)	(p,p),(5,6),(5-2)	32

Watch Video Solution

4. In the each of the following, find the value of 'a' for which the given points are collinear.

$(2, 3), (4, a)$ and $(6, -3)$

Watch Video Solution

5. Find the area of the quadrilateral whose vertices are at

$(-9, -2), (-8, -4), (2, 2)$ and $(1, -3)$

Watch Video Solution

6. Find the value of k, if the area of a quadrilateral is 28 sq.units, whose vertices are

$(-4, -2), (-3, k), (3, -2)$ and $(2, 3)$

Watch Video Solution

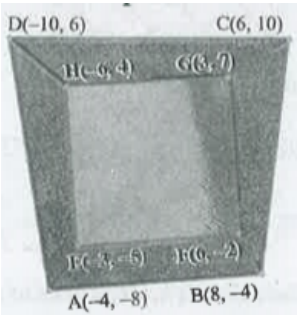
7. If the points $A(-3, 9), B(a, b)$ and $C(4, -5)$ are collinear and if $a + b = 1$, find the a and b.

Watch Video Solution

8. Let P(11, 7), Q(13.9, 4) an dR(9.5, 4) be the mid points of the sides AB, BC and AC respectively of $\triangle ABC$. Find the coordinates of the vertices A, B, and C. Hence find the area of $\triangle ABC$ and compare this with area of $\triangle PQR$.

Watch Video Solution

9. In the figure, the quadrilateral swimming pool shown is surrounded by concrete patio. Find the area of the patio.



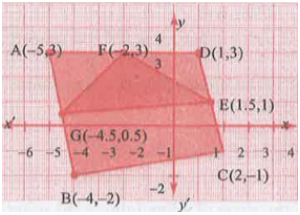
Watch Video Solution

10. A triangle shaped glass with vertices at $A(-5, -4), B(1, 6)$ and $C(7, -4)$ has to be painted. If one bucket of paint covers 6 square feet,

how many buckets of paint will be required paint is applied.

Watch Video Solution

11. In the figure, find area of triangle FED



Watch Video Solution

Exercise 5 2

1. What is the slope of a line whose inclination with positive direction of x-axis is

90°

Watch Video Solution

2. What is the inclination of a line whose slope is

0

Watch Video Solution

3. Find the slope of a line joining the points $(\sin\theta, -\cos\theta)$ and $(-\sin\theta, \cos\theta)$ with the origin

Watch Video Solution

4. What is the slope of a line perpendicular to the line joining $A(5, 1)$ and P where P is the mid-point of the segment joining (4, 2)) and (-6, 4).

Watch Video Solution

5. Show that the given points are collinear, (-3,-4) , (7,2) and (12,5)

Watch Video Solution

6. If the three points (3,-1) (a,3) and (1,-3) are collinear, find the vlaue of a .

Watch Video Solution

7. The line through the points $(-2, a)$ and $(9, 3)$ has slope $\frac{-1}{2}$. Find the value of a.

Watch Video Solution

8. The line thorugh the point $(-2, 6)$ and $(4, 8)$ perpendicular to the line through the points $(8, 12)$ and $(x, 24)$. Find the value of x.

Watch Video Solution

9. Show that the given points form a right angled triangle and check whether they satisfies pythagoras theorem.

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

Watch Video Solution

10. Show that the given points form a parallelogram:

$A(2.5, 3.5), B(10, -4), C(2.5, -2.5)$ and $D(-5, 5)$

.

Watch Video Solution

11. If the points $A(2, 2), B(-2, -3), C(1, -3)$ and $D(x, y)$ form a parallelogram then find the value of x and y.

Watch Video Solution

12. Let $A(3, -4), B(9, -4), C(5, -7)$ and $D(7, -7)$. Show that ABCD is a trapezium.

Watch Video Solution

13. A quadrilateral has vertices at $A(-4, -2), B(5, -1), C(6, 5)$ and $D(-7, 6)$. Show that the mid-point of its sides form a parallelogram.

Watch Video Solution

14. PQRS is a rhombus. Its diagonals PR and QS intersect at the points M and satisfy QS =2PR. If the coordinates of S and M are (1,1) and (2,-1) respectively , find the coordinates of P.

Watch Video Solution

Exercise 5 3

1. Find the equation of a straight line passing through the mid-point of a line segment joining the points $(1, -5), (4, 2)$ and parallel to

X axis

Watch Video Solution

2. The equation of a straight line is 2(x-y) +5 =0. Find its slope, inclination and intercept on the Y axis.

Watch Video Solution

3. Find the equation of a line whose inclination is 30° and making an intercept -3 on the Y axis.

Watch Video Solution

4. Find the slope and y intercept of $\sqrt{3}x + \left(1 - \sqrt{3}\right)y = 3.$

Watch Video Solution

5. Find the value of 'a' if the line through (-2,3) and (8,5) is perpendicular to y=ax+2 .

Watch Video Solution

6. The hill in the form of a right triangle has its foot at (19, 2). The inclination of the hill to the ground is 45°. Find the equation of the hill joining the foot and top.

Watch Video Solution

7. Find the equation of a line through the given pair of points $(x_1, y_1), (x_2, y_2)$

$\left(2, \frac{2}{3}\right)$ and $\left(\frac{-1}{2}, -2\right)$

Watch Video Solution

8. A cat is located at the point $(-6, -4)$ in xy plane. A bottle of milk is kept at (5,11).The cat wishes to consume the milk travelling through shortest possible distance. Find the equation of the path it needs to take its milk.

Watch Video Solution

9. Find the equation of the median and altitude of $\triangle ABC$ through A where the vertices are $A(6, 2), B(-5, -1)$ and $C(1, 9)$.

Watch Video Solution

10. Find the equation of a straight line which has slope $\frac{-5}{4}$ and passing through the point (-1,2) .

Watch Video Solution

11. You are downloading a song. The percent y (in decimal form) of mega bytes remaining to get downloaded in x seconds is given by $y = 0.1x + 1$. find the total MB of the song.

Watch Video Solution

12. Find the equation of a line whose intercepts on the x and y axes are given below.

(i) 4,-6 and (ii) -5, $\frac{3}{4}$

Watch Video Solution

13. Find the intercepts made by the following lines on the coordinate axes.

(i) 3x-2y-6=0

(ii) 4x+3y+12=0

Watch Video Solution

14. Find the equation of a straight line

Passing through (1, -4) and has intercepts which are in the ratio 2:5

Watch Video Solution

Exercise 5 4

1. Find the slope of the following straight lines.

(i) 5y-3=0

(ii) $7x - \frac{3}{17} = 0$

Watch Video Solution

2. Find the slope of the line which is

parallel to y=0.7 x-11

perpendicular to the line x =-11

Watch Video Solution

3. Check whether the given lines are parallel or perpendicular

$$\frac{x}{3}+\frac{y}{4}+\frac{1}{7}=0 \text{ and } \frac{2x}{3}+\frac{y}{2}+\frac{1}{10}=0$$

Watch Video Solution

4. If the straight lines $12y = -(p+3)x + 12, 12x - 7y = 16$ are perpendicular find 'p' .

Watch Video Solution

5. Find the equation of a straight line passing through the point $P(-5, 2)$ and parallel to the line joining the points $Q(3, -2)$ and $R(-5, 4)$.

Watch Video Solution

6. Find the equation of a line passing thorugh $(6, -2)$ and perpendicular to the line joining the point $(6, 7)$ and $(2, -3)$.

Watch Video Solution

7. $A(-3, 0), B(10, -2)$ and $C(12, 3)$ are the vertices of $\triangle ABC$. Find the equation of the altitude through A and B.

Watch Video Solution

8. Find the equation of the perpendicular bisector of the line joinging the point $A(-4, 2)$ and $B(6, -4)$.

Watch Video Solution

9. Find the equation of a straight line through the intersection of lines $7x + 3y = 10, 5x - 4y = 1$ and parallel to the lines $13x + 5y + 12 = 0$.

Watch Video Solution

10. Find the equation of a straight line through the intersection of lines $3x + 2y = 10$ and $5x - 6y = 2$ and perpendicular to the line $4x - 7y + 13 = 0$.

Watch Video Solution

11. Find the equation of a straight line joining the point of intersection of $3x + y + 2 = 0$ and $x - 2y - 4 = 0$ to the point of intersection of $7x - 3y = -12$ and $2y = x + 3$.

Watch Video Solution

12. Find the equation of a straight line through the point of intersection of the lines $8x + 3y = 18, 4x + 5y = 9$ and bisecting the line segment joining the points $(5, -4)$ and $(-7, 6)$.

Watch Video Solution

Exercise 5 5

1. The area of triangle formed by the points (-5,0) ,(0,-5) and (5,0) is .....

A. 0 sq. units

B. 25 sq. units

C. 5 sq.units

D. none of these

Answer: B

Watch Video Solution

2. A man walks near a wall, such that the distance between him and the wall is 10 units. Consider the wall to be the Y axix. The path travelled by the man is

A. x=10

B. $y=10$

C. $x=0$

D. $y=0$

Answer: A

 Watch Video Solution

3. The straight line given by the equation $x=11$ is .....

A. parallel to x axis

B. parallel to y axis

C. passing through the origin

D. passing through the point (0,11)

Answer: B

 Watch Video Solution

4. If (5,7),(3,p) and (6,6) are collinear, then the value of p is .....

A. 3

B. 6

C. 9

D. 12

Answer: C

Watch Video Solution

5. The point of intersection of $3x - y = 4$ and $x + y = 8$ is

A. (5,3)

B. (2,4)

C. (3,5)

D. (4,4)

Answer: C

Watch Video Solution

6. The slope of the line joining (12,3) (4,a) is $\frac{1}{8}$. The value of 'a' is .....

A. 1

B. 4

C. -5

D. 2

Answer: D

Watch Video Solution

7. The slope of the line which is perpendicular to a line joining the points (0,0) and (-8,8) is .....

A. -1

B. 1

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

D. -8

Answer: B

Watch Video Solution

8. If slope of the line PQ is $\frac{1}{\sqrt{3}}$ then slope of the perpendicular bisector of PQ is .....

A. $\sqrt{3}$

B. $-\sqrt{3}$

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

D. 0

Answer: B

Watch Video Solution

9. If A is a points on the Y axis whose ordinate is 8 and B is a point on the x axis whose abscissae is 5 then the equation of the line AB is .....

A. $8x+5y=40$

B. $8x-5y=40$

C. $x=8$

D. $y=5$

Answer: A

Watch Video Solution

10. The equation of a line passing through the origin and perpendicular to the line $7x-3y+4=0$ is .....

A. $7x-3y+4=0$

B. $3x-7y+4=0$

C. $3x+7y=0$

D. $7x-3y=0$

Answer: C

Watch Video Solution

11. Consider four straight lines

(i)$l_1 = 3y = 4x + 5$ (ii)$l_2 : 4y = 3x - 1$

(iii)$l_3 : 4y + 3y = 7$ (iv)$l_4 4x + 3y = 2$

A. l_1 and l_2 are perpendicular

B. l_1 and l_4 are parallel

C. l_2 and l_4 are perpendicular

D. l_2 and l_3 are parallel

Answer: C

Watch Video Solution

12. A straight line has equation $8y=4x+21$.

which of the following is true.....

A. The slope is 0.5 and the y intercept is 2.6

B. The slope is 5 and the y intercept is 1.6

C. The slope is 0.5 and the y intercept is 1.6

D. The slope is 5 and the y intercept is 2.6

Answer: A

Watch Video Solution

13. When proving that quadrilateral is a trapezium it is neccesary to show ___.

A. Two sides are parallel

B. Two parallel and two non-parallel sides

C. Opposite sides are parallel

D. All sides are of equal length.

Answer: B

Watch Video Solution

14. When proving that a quadrilateral is a parallelogram by using slopes you must find

A. the slopes of two sides

B. The slopes of two pair of opposite sides

C. The lengths of all sides

D. Both the lengths and slopes of two sides

Answer: B

Watch Video Solution

15. $(2, 1)$ is the points of intersection of two lines

A. x-y=3=0, 3x-y-7=0

B. x+y=3,3x+y=7

C. 3x+y=3,x+y=7

D. x+3y-3=0, x-y-7=0

Answer: B

Watch Video Solution

Unit Exercise 5

1. PQRS is a rectangle formed by joining the points $P(-1, -1), Q(-1, 4), R(5, 4)$ and $S(5, -1)$.

A, B, C and D are the mid points of PQ, QR, RS and SR respectively. Is the quadrilateral ABCD a square, a rectangle or a rhombus? Justify your answer.

Watch Video Solution

2. The area of triangle is 5 sq. units. Two of its vertices are $(2, 1)$ and $(3, -2)$. The third vertex is (x, y) where y=x+3. Find the coordinates of the third vertex.

Watch Video Solution

3. Find the area of a triangle formed by lines $3x + y - 2 = 0, 5x + 2y - 3 = 0$ and $2x - y - 3 = 0$

Watch Video Solution

4. If vertices of a quadrilateral are at $A(-5, 7), B(-4, k), C(-1, -6)$ and $D(4, 5)$ and its area is 72 sq. units. Find the value of k.

Watch Video Solution

5. Without using distance formula, show that the points $(-2, -1), (4, 0), (3, 3)$ and $(-3, 2)$ is

vertices of a parallelogram.

Watch Video Solution

6. Find the equations of the lines, whose sum and product of intercepts are 1 and -6 respectively.

Watch Video Solution

7. The owner of a milk store finds that, he can sell 980 litres of milk each week at ₹14/litres and 1220 litres of milk each week at ₹16/litre. Assuming a linear

relationship between selling price and demand, how many litres could he sells weekly at ₹17/litres?

Watch Video Solution

8. Find the image of the points $(3, 8)$ with respect to the line $x + 3y = 7$ assuming the line to be a plane mirror.

Watch Video Solution

9. Find the equation of a line passing through the point of intersection of the lines

$4x + 7y - 3 = 0$ and $2x - 3y + 1 = 0$ that has equal intercepts on the axes.

Watch Video Solution

10. A person standing at a junction (crossing) of two straight paths represented by the equations $2x - 3y + 4 = 0$ and $3x + 4y - 5 = 0$ seek to reach the path whose equation is $6x - 7y + 8 = 0$ in the least times. Find the equation of the path that he should follow.

Watch Video Solution

Additional Questions Solved Multiple Questions

1. If the three points (-3,7),(a,1),(-3,2) are collinear then the value of 'a' is .....

A. 0

B. -1

C. -3

D. 1

Answer: C

Watch Video Solution

Additional Questions Solved Multiple Choice Questions

1. If A(5,5) ,B(-5,1) ,C(10,7) lie in a straight line, the area of ΔABC is .....

A. $\frac{13}{2}$ sq.units

B. 9 sq. units

C. 25 sq.units

D. 0

Answer: D

Watch Video Solution

2. In a rectangle ABCD area of ΔABC is $\frac{31}{2}$ Sq. units.

Then the area of rectangle is .....

A. 62 sq. units

B. 31 sq. units

C. 60 sq. units

D. 30 sq. units

Answer: B

Watch Video Solution

3. If the points (k,2k) ,(3k,3k) and (3,1) are collinear, then k is .....

A. $\frac{1}{3}$

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

C. $\frac{2}{3}$

D. $-\frac{2}{3}$

Answer: B

Watch Video Solution

4. If the area of the triangle formed by the points (x,2x) ,(-2,6) and (3,1) is 5 square units then x=.....

A. 2

B. $\frac{3}{5}$

C. 3

D. 5

Answer: A

Watch Video Solution

5. The slope of a line parallel to y-axis is equal to .....

A. 0

B. -1

C. 1

D. not defined

Answer: D

Watch Video Solution

6. In a rectangle PQRS , the slope of PQ $= \frac{5}{6}$ then the slope of RS is .....

A. $\frac{-5}{6}$

B. $\frac{6}{5}$

C. $\frac{-6}{5}$

D. $\frac{5}{6}$

Answer: D

Watch Video Solution

7. The y-intercept of the line y=2x is .....

A. 1

B. 2

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

D. 0

Answer: D

Watch Video Solution

8. The straight line given by the equation y=5 is .....

A. parallel to x axis

B. parallel to y axis

C. passing through the origin

D. none of these

Answer: A

Watch Video Solution

9. The x-intercept of the line 2x-3y+5 =0 is .....

A. $\frac{5}{2}$

B. $\frac{-5}{2}$

C. $\frac{2}{5}$

D. $\frac{-2}{5}$

Answer: B

Watch Video Solution

10. The lines 3x-5y+1=0 and 5x+ky+2=0 are perpendicular if the value of k is .....

A. -5

B. 3

C. -3

D. 5

Answer: B

Watch Video Solution

11. if x-y=3 and x+2y=6 ae the diameters of a circle then the centre is at the point.....

A. (0,0)

B. (1,2)

C. (1,-1)

D. (4,1)

Answer: D

Watch Video Solution

12. The line $4x+3y-12=0$ meets the x-axis at the point.....

A. (4,0)

B. (3,0)

C. (-3,0)

D. (-4,0)

Answer: B

Watch Video Solution

13. The equation of a straight line passing through the point (2,-7) and parallel to x-axis is .....

A. x=2

B. x=-7

C. y=-7

D. y=2

Answer: C

Watch Video Solution

14. The equation of a straight line having slope 3 and y intercept -4 is .....

A. $3x-y-4=0$

B. $3x+y-4=0$

C. $3x-y+4=0$

D. $3x+y+4=0$

Answer: A

Watch Video Solution

Additional Questions Solved Answer The Following Questions

1. If the points (3,-4) (1,6) and (-2,3) are the vertices of a triangle ,find its area.

Watch Video Solution

2. If the area of the triangle formed by the points (1,2) (2,3) and a,4) is 8 sq. units find a.

Watch Video Solution

3. If the points A(2,5) ,B(4,6) and C(8,a) are collinear find the value of 'a' using slope concept .

Watch Video Solution

4. If (x, y) is any point on the line joining the points A(a, 0) and B (0, b), then show that $\frac{x}{a}+\frac{y}{b}=1$

Watch Video Solution

5. A straight line passes through (1,2) and has the equation y-2x-k =0 . Find k.

Watch Video Solution

6. If a line passes through the mid point of AB where A is (3,0) and B is (5,4) and makes an angle 60° with x-axis find its equation.

Watch Video Solution

7. Find the equation of the line through (3,2) and perpendicular to the line joining (4,5) and (1,2)

Watch Video Solution

8. P and Q trisect the line segment joining the points (2,1) and (5,-8) . If the point P lies on 2x-y+k=0, then

find the value of k.

Watch Video Solution

9. Find the equation of the line passing through (4,5) and making equal intercept in the axes.

Watch Video Solution

10. Find the equation of the line passing through (2,-1) and whose intercepts on the axes are equal in magnitude but opposite in sign.

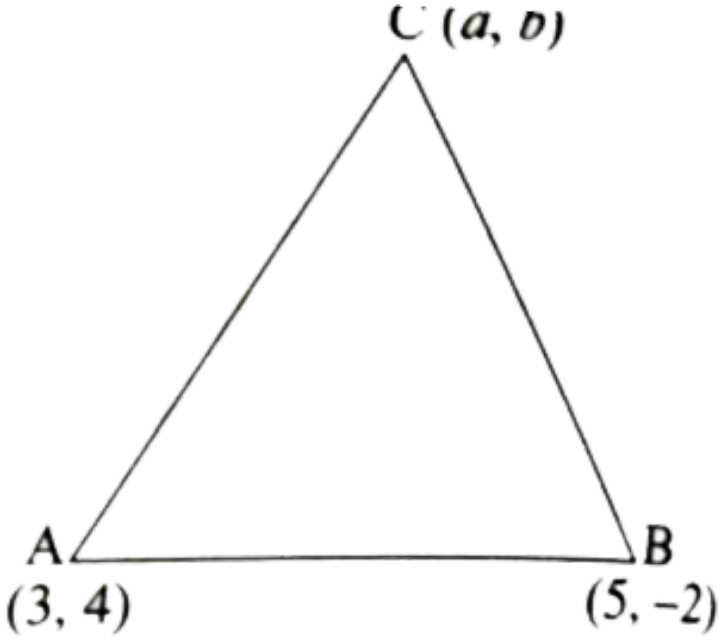
Watch Video Solution

11. The straight line cuts the coordinate axes at A and B. if the mid point of AB is (3,2) the find the equation of AB.

Watch Video Solution

12. If the coordinates of two points A and B are (3,4) and (5,-2) respectively . Find the coordinates of any point 'c' , if AC =BC and area of triangle ABC =10 sq.

units.



Watch Video Solution

13. The four vertices of a quadrilateral are (1,2) (-5,6) (7,-4) and (k,-2) taken in order.

if the area of the quadrilateral is 9 sq. units find the value of k.

Watch Video Solution

14. Find the area of a triangle whose three sides are having the equations $x+y=2, x-y=0$ and $x+2y-6=0$.

Watch Video Solution

15. Verify the Median of a triangle divides into two triangles of the equal whose vertices are A(4,-6),B(3,-2) and C(5,2)

Watch Video Solution

16. Find the area of the ΔABC with A(1,-4) and the mid points of sides through A being (2,-1) and (0,-1)

Watch Video Solution

17. Find the equation of the straight lines passing through (-3,10) whose sum of the intercepts is 8.

Watch Video Solution

18. Find the equation of the straight line passing through the point of intersection of the lines $5x-8y+23=0$ and $7x+6y-71=0$ and is perpendicular to the line joining the points $(5,1)$ and $(-2,2)$.

Watch Video Solution

19. Find the equation of the line passing through the points of intersection of $4x-y-3=0$ and $x+y-2=0$ and perpendicular to $2x-5y+3=0$.

Watch Video Solution

20. Find the equation of the line through the point of intersection of the lines $2x+y-5=0$ and $x+y-3=0$ and bisecting the line segment joining the points $(3,-2)$ and $(-5,6)$.

Watch Video Solution