MATHS

BOOKS - SELINA MATHS (ENGLISH)

EQUATION OF A LINE

Questions

1. Check, whether point (4, -2) lies on the line represented by equation $3x + 5y = 2$ or not?

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2. The straight line represented by equation $x - 3y + 8 = 0$ passes through (2, 4). Is this true ?

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3. The line, represented by the equation $3x - 8y = 2$, passes through the point (k, 2). Find the value of k.

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4. Does the line $3x = y + 1$ bisect the line segment joining A (-2, 3) and B (4, 1)?

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5. The line joining the points $(2,\ 1)$ and $(5,\ -8)$ is trisected at the points P and Q. If point P lies on the line $2x - y + k = 0$. Find the value of k.

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6. Find the slope of the line segment whose inclination is :

60°

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7. Find the slope of the line segment whose inclination is :

52°

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8. Find the inclination of the line whose slope is:

1

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9. Find the inclination of the line whose slope is:

2.9042

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10. Find the slope of the line passing through the points A (-2, 3) and B (2,7). Also find the inclination of the line AB.

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11. Find the slope of the line passing through the points A (-2, 3) and B (2,7). Also find the inclination of the line AB.

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12. Find the slope of the line passing through the points A (-2, 3) and B (2,7). Also find the inclination of the line AB.

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13. The line joining A (-3, 4) and B (2, -1) is parallel to the line joining C (1, -2) and D (0, x). Find x.

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14. Given the points A (2, 3), B (-5, O) and C (-2, a) are collinear. Find 'a'.

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15. Find the equation of a line :

whose inclination is 45° and y-intercept is 5.

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16. Find the equation of a line :

with inclination = 60° and passing through (-2, 5).

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17. Find the equation of a line :

passing through the points (-3, 1) and (1,5).

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18. Find the equation of the line whose x-intercept is 8 and y-intercept is -12.

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19. Find the equation of the line whose slope is -3 and x-intercept is also -3.

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20. Find the equation of the line which passes through (2, 7) and whose y-intercept is 3.

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21. The equation of a line is $3x - 4y + 12 = 0$. It meets the x-axis at point A and the y-axis at point B. Find :

the co-ordinates of points A and B.

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22. The equation of a line is $3x - 4y + 12 = 0$. It meets the x-axis at point A and the y-axis at point B. Find :

the length of intercept AB, cut by the line within the co-ordinate axes.

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23. Write down the equation of the line whose gradient is $\frac{3}{2}$ and which passes through P, where P divides the line segment joining $A(-2, 6)$ and $B(3, -4)$ in the ratio 2 : 3.

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24. A straight line passes through the point P(3, 2). It meets the x-axis at point A and the y-axis at point B. If $\frac{PA}{PB} = \frac{2}{3}$. find the equation of the line that passes through the point P and is perpendicular to line AB.

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25. Find the equations of the lines which pass through the point (-2, 3) and are equally inclined to the co-ordinate axes.

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26. Find the slope and y-intercept of the line $2x - 3y - 4 = 0$

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27. Given two straight lines $3x - 2y = 5$ and $2x + ky + 7 = 0$. Find the value of k for which the given lines are :

parallel to each other.

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28. Given two straight lines $3x - 2y = 5$ and $2x + ky + 7 = 0$. Find the value of k for which the given lines are :

parallel to each other.

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29. Find the equation of the line passing through (2, -1) and parallel to the line $2x - y = 4$.


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30. Find the equation of the line which passes through the point (-2, 3) and is perpendicular to the line $2x + 3y + 4 = 0$


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31. Given two points A (-5, 2) and B (1, -4), find :

mid-point of AB.

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32. Given two points A (-5, 2) and B (1, -4), find :

slope of AB.

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33. Given two points A (-5, 2) and B (1, -4), find :

slope of perpendicular to AB

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34. Given two points A (-5, 2) and B (1, -4), find :

equation of the perpendicular bisector of AB.

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35. ABCD is a rhombus. The co-ordinates of A and Care (3, 6) and (-1, 2) respectively. Find the equation of BD.

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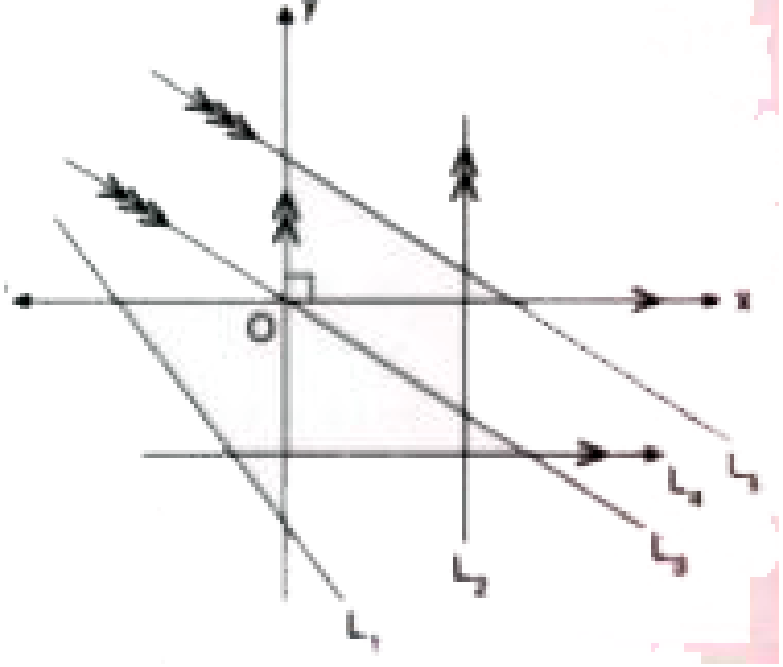
36. Match the equations A, B, C, D and E with the lines L_1, L_2, L_3, L_4 and L_5, whose graphs are roughly drawn in the given diagram.



$A \equiv 2x + y = 0, \quad B \equiv 2x + y = 20$

$C \equiv x = 8,$

$D = y = -12 \quad E = 2x + 3y + 12 = 0$

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Exercise 14 A

1. Find, which of the following points lie on the line $x - 2y + 5 = 0$:

$(i)(1, 3)$ $(ii)(0, 5)$

$(iii)(-5, 0)$ $(iv)(5, 5)$

$(v)(2, -1.5)$ $(-2, -1.5)$

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2. State, true or false :

the line $\frac{x}{2} + \frac{y}{3} = 0$ passes through the point (2, 3).

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3. State, true or false :

the line $\frac{x}{2} + \frac{y}{3} = 0$ passes through the point $(4, -6)$.

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4. State, true or false :

the point $(8, 7)$ lies on the line $y - 7 = 0$

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5. State, true or false :

the point $(-3, 0)$ lies on the line $x + 3 = 0$

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6. State, true or false :

if the point (2, a) lies on the line $2x - y = 3$,

then $a = 5$.

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7. The line given by the equation $2x - \frac{y}{3} = 7$ passes through the point $(k, 6)$, calculate the value of k.

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8. For what value of k will the point $(3, -k)$ lie on the line $9x + 4y = 3$?

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9. The line $\frac{3x}{5} - \frac{2y}{3} + 1 = 0$contains the point $(m, 2m - 1)$, calculate the value of m.

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10. Does the line $3x - 5y = 6$ bisect the join of (5,-2) and (-1, 2) ?

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11. The line $y = 3x - 2$ bisects the join of (a, 3) and (2, -5), find the value of a.

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12. The line $x - 6y + 11 = 0$ bisects the join of (8, -1) and (0, k). Find the value of k.

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13. The point (-3, 2) lies on the line $ax + 3y + 6 = 0$, calculate the value of a.

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14. The line $y = mx + 8$ contains the point (-4, 4), calculate the value of m.

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15. The point P divides the join of (2, 1) and (-3, 6) in the ratio 2 : 3. Does P lie on the line $x - 5y + 15 = 0$?

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16. The line segment joining the points (5, -4) and (2, 2) is divided by the point Q in the ratio 1:2. Does the line $x - 2y = 0$ contain Q?

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17. Find the point of intersection of the lines $4x + 3y = 1$ and $3x - y + 9 = 0$. If this point lies on the line $(2k - 1)x - 2y = 4$, find the value of k.

The above question can also be stated as : If the lines $4x + 3y = 1, 3x - y + 9 = 0$ and $(2k - 1)x - 2y = 4$ are concurrent (pass through the same point), find the value of k.

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18. Show that the lines $2x + 5y = 1, x - 3y = 6$ and $x + 5y + 2 = 0$ are concurrent.

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Exercise 14 B

1. Find the slope of the line whose inclination is:

90°

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2. Find the slope of a line whose inclination is

30°

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3. Find the slope of the line whose inclination is:

$72^\circ, 30^\circ$

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4. Find the slope of the line whose inclination is:

46°

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5. Find the inclination of the line whose slope is :

0

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6. Find the inclination of the line whose slope is:

$\sqrt{3}$

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7. Find the inclination of the line whose slope is :

0.7646

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8. Find the inclination of the line whose slope is :

1.0875

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9. Find the slope of the line passing through the following pairs of points :

$(-2, -3)$ and $(1, 2)$

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10. Find the slope of the line passing through the following pairs of points :

$(-4, 0)$ and origin

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11. Find the slope of the line passing through the following pairs of points :

$(a, -b)$ and $(b, -a)$

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12. Find the slope of the line parallel to AB if :

$A = (-2, 4)$ and $B = (0, 6)$

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13. Find the slope of the line parallel to AB if :

$A = (0, -3)$ and $B = (-2, 5)$

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14. Find the slope of the line perpendicular to AB if :

$A = (0, -5)$ and $B = (-2, 4)$

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15. Find the slope of the line perpendicular to AB if :

$A = (3, -2)$ and $B = (-1, 2)$

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16. The line passing through (0, 2) and (-3, -1) is parallel to the line passing through (-1, 5) and $(4, a)$. Find a.

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17. The line passing through (-4, -2) and (2, -3) is perpendicular to the line passing through (a, 5) and (2, -1). Find a.

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18. Without using the distance formula, show that the points A (4, -2), B (-4, 4) and C (10, 6) are the vertices of a right-angled triangle.

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19. Without using the distance formula, show that the points A (4, 5), B (1, 2), C (4, 3) and D (7, 6) are the vertices of a parallelogram.

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20. $(-2, 4), (4, 8), (10, 7)$ and $(11, -5)$ are the vertices of a quadrilateral. Show that the quadrilateral, obtained on joining the mid-points of its sides, is a parallelogram.

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21. Show that the points $(a, b+c)$, $(b, c+a)$ and $(c, a+b)$ are collinear.

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22. Find x, if the slope of the line joining (x, 2) and (8, -11) is $-\frac{3}{4}$.

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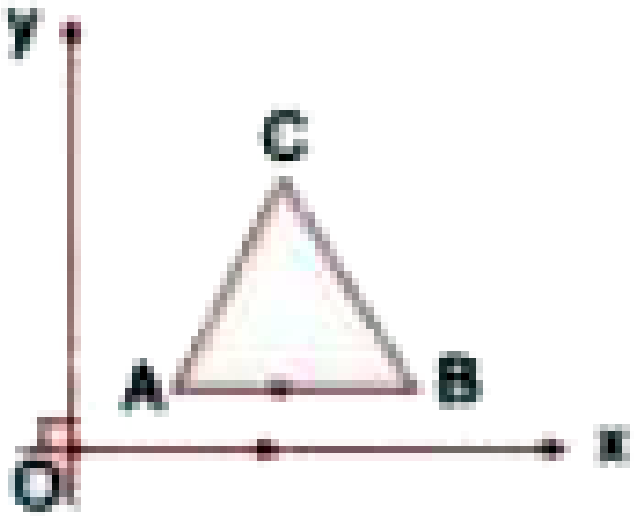
23. The side AB of an equilateral triangle ABC is parallel to the x-axis. Find the slopes of all

its sides.



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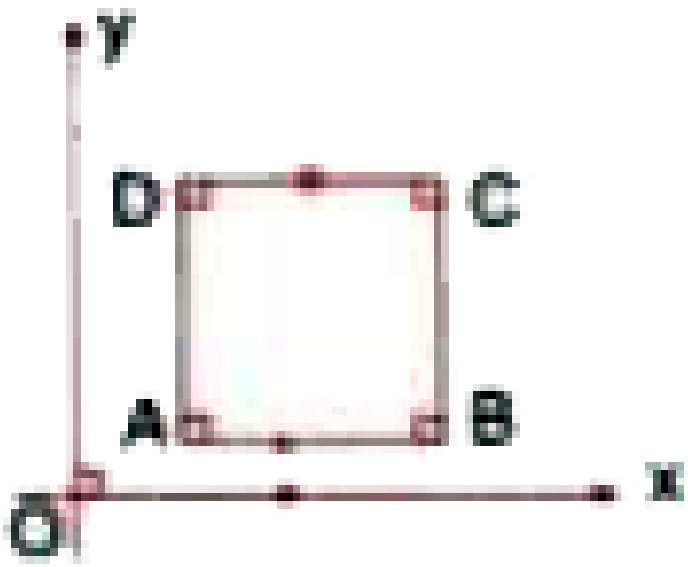
24. The side AB of a square ABCD is parallel to the x-axis. Find the slopes of all its sides.



Also, find :

the slope of the diagonal AC.

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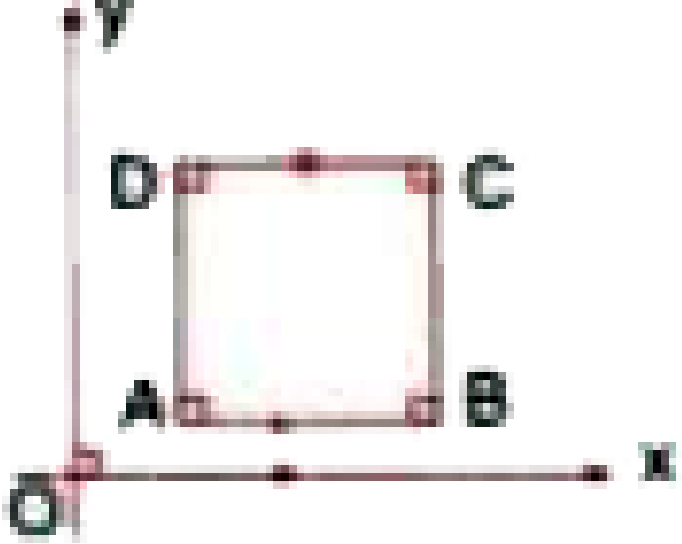
25. The side AB of a square ABCD is parallel to the x-axis. Find the slopes of all its sides.



Also, find :

the slope of the diagonal BD.

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26. A (5, 4), B (-3, -2) and C (1, -8) are the vertices of a triangle ABC. Find :

the slope of the altitude of AB.

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27. A (5, 4), B (-3, -2) and C (1, -8) are the vertices of a triangle ABC. Find :

the slope of the median AD .

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28. A (5, 4), B (-3, -2) and C (1, -8) are the vertices of a triangle ABC. Find :

the slope of the line parallel to AC.

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29. The slope of the side BC of a rectangle ABCD is $\frac{2}{3}$. Find :

the slope of the side AB.

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30. The slope of the side BC of a rectangle ABCD is $\frac{2}{3}$. Find :

the slope of the side AD.

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31. Find the slope and the inclination of the line AB if :

$A = (-3, -2)$ and $B = (1, 2)$.

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32. Find the slope and the inclination of the line AB if :

$A = (0, -\sqrt{3})$ and $B = (3, 0)$.

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33. Find the slope and the inclination of the line AB if :

$A = (-1, 2\sqrt{3})$ and $B = (-2, \sqrt{3})$

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34. The points A(-3, 2), B(2, -1) and C(a, 4) are collinear. Find a.

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35. The points $(K, 3), (2, -4)$ and $(-K+1, -2)$ are collinear. Find K.

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36. Plot the points $A(1, 1), B(4, 7)$ and $C(4, 10)$ on a graph paper. Connect A and B, and also A and C.

Which segment appears to have the steeper slope, AB or AC ?

Justify your conclusion by calculating the slopes of AB and AC.

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37. Find the value(s) of k so that PQ will be parallel to RS. Given :

$P(2, 4), Q(3, 6), R(8, 1)$ and $S(10, k)$

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38. Find the value(s) of k so that PQ will be parallel to RS. Given :

$P(3, -1), Q(7, 11), R(-1, -1)$ and $S(1, k)$

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39. Find the value of k so that PQ will be parallel to RS .

$P(5, -1), Q(6, 11), R(6, -4k)$ and $S(7, k^2)$

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Exercise 14 C

1. Find the equation of a line whose :

y-intercept = 2 and slope = 3.

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2. Find the equation of a line whose :

y-intercept = -1 and inclination = 45°.

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3. Find the equation of the line whose slope is $-\frac{4}{3}$ and which passes through $(-3, 4)$.

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4. Find the equation of a line which passes through $(5, 4)$ and makes an angle of 60° with the positive direction of the x-axis.

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5. Find the equation of the line passing through:

(0, 1) and (1, 2)

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6. Find the equation of the line passing through:

(-1, -4) and (3, 0)

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7. The co-ordinates of two points P and Q are (2, 6) and (-3, 5) respectively. Find :

the gradient of PQ.

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8. The co-ordinates of two points P and Q are (2, 6) and (-3, 5) respectively. Find :

the equation of PQ

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9. The co-ordinates of two points P and Q are (2, 6) and (-3, 5) respectively. Find :

the co-ordinates of the point where PQ intersects the x-axis.

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10. The co-ordinates of two points A and B are (-3, 4) and (2, -1). Find :

the equation of AB.

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11. The co-ordinates of two points A and B are (-3, 4) and (2, -1). Find :

the co-ordinates of the point where the line AB intersects the y-axis.

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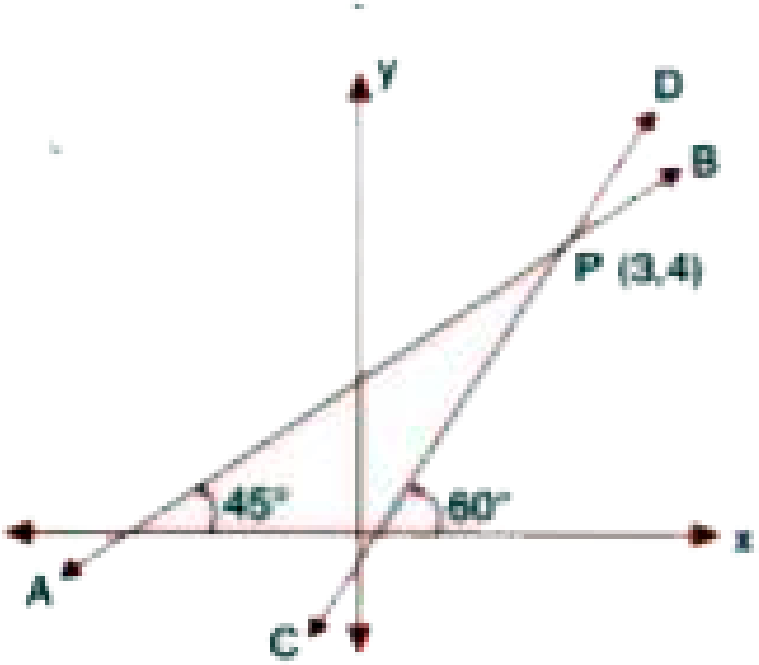
12. The figure given alongside shows two straight lines AB and CD intersecting each P (3,4) other at point P (3, 4). Find the equations

45° of AB and CD.



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13. In $\Delta ABC, A = (3, 5), B = (7, 8)$ and $C = (1, -10)$. Find the equation of the

median through. A.

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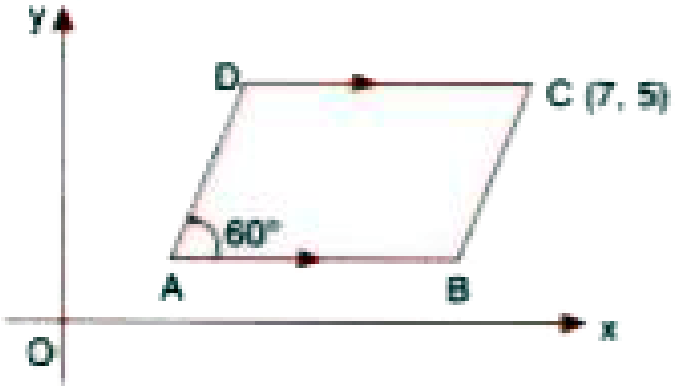
14. The following figure shows a parallelogram ABCD whose side AB is parallel to the x-axis, $\angle A = 60^\circ$ and vertex $C = (7, 5)$. Find the equations of BC and CD.



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15. Find the equation of the straight line passing through origin and the point of intersection of the lines $x + 2y = 7$ and $x - y = 4$.

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16. In triangle ABC, the co-ordinates of vertices A, B and C are (4, 7), (-2, 3) and (0, 1) respectively. Find the equation of median

through vertex A.

Also, find the equation of the line through vertex B and parallel to AC.

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17. A, B and C have co-ordinates (0, 3), (4, 4) and (8, 0) of triangle ABC respectively. Find the equation of the line through A and perpendicular to BC.

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18. Find the equation of the perpendicular dropped from the point (-1, 2) onto the line joining the points (1, 4) and (2, 3).

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19. Find the equation of the line, whose :

x-intercept = 5 and y-intercept = 3

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20. Find the equation of the line, whose :

x-intercept = -4 and y-intercept = 6

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21. Find the equation of the line, whose :

x-intercept = -8 and y-intercept = -4

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22. Find the equation of the line whose slope is $-\frac{5}{6}$ and x-intercept is 6.

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23. Find the equation of the line with x-intercept 5 and a point on it (-3, 2).

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24. Find the equation of the line through (1, 3) and making an intercept of 5 on the y-axis.

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25. Find the equations of the lines passing through point (-2, 0) and equally inclined to the co-ordinate axes.

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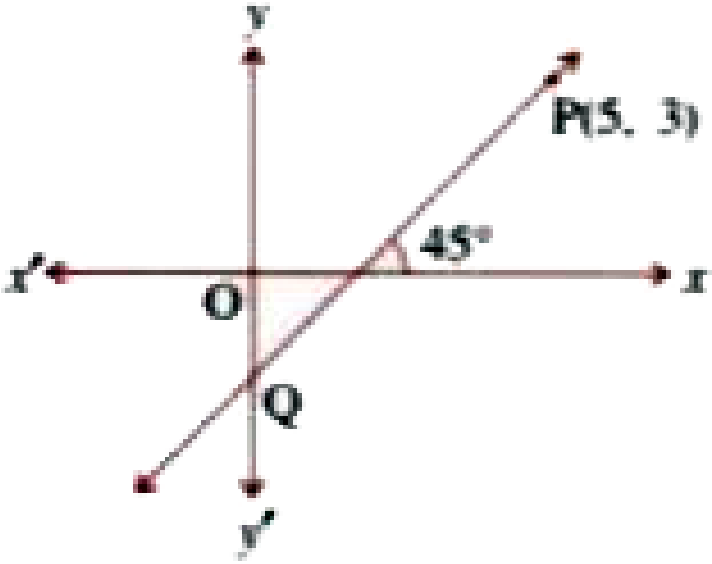
26. The line through P(5, 3) intersects y-axis at Q.



Write the slope of the line.

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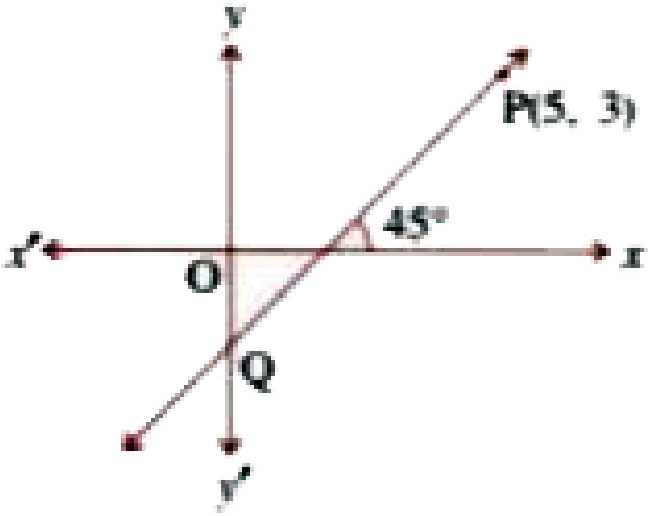
27. The line through P(5, 3) intersects y-axis at Q.



Write the equation of the line.

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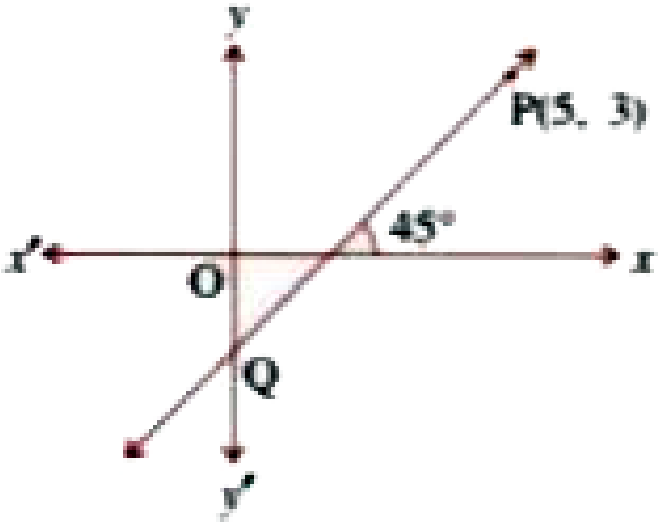
28. The line through P(5, 3) intersects y-axis at Q.



Find the co-ordinates of Q.

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29. Write down the equation of the line whose gradient is $-\frac{2}{5}$ and which passes through point P, where P divides the line segment joining A (4, -8) and B (12, 0) in the ratio 3:1.

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30. $A(1, 4), B(3, 2)$ and $C(7, 5)$ are vertices of a triangle ABC. Find :

the co-ordinates of the centroid of triangle ABC.

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31. $A(1, 4), B(3, 2)$ and $C(7, 5)$ are vertices of a triangle ABC. Find :

the equation of a line, through the centroid and parallel to AB.

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32. $A(7, -1), B(4, 1)$ and $C(-3, 4)$ are the vertices of a triangle ABC. Find the

equation of a line through the vertex B and the point P in AC, such that $AP : CP = 2 : 3$.

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Exercise 14 D

1. Find the slope and y-intercept of the line :

$y = 4$

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2. Find the slope and y-intercept of the line :

$ax - by = 0$

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3. Find the slope and y-intercept of the line :

$3x - 4y = 5$

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4. The equation of a line is $x - y = 4$. Find its slope and y-intercept. Also, find its inclination.

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5. Is the line $3x + 4y + 7 = 0$ perpendicular to the line $28x - 21y + 50 = 0$?

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6. Is the line $x - 3y = 4$ perpendicular to the line $3x - y = 7$?

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7. Is the line $3x + 2y = 5$ parallel to the line $x + 2y = 1$?

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8. Determine x so that the slope of the line through (1, 4) and (x, 2) is 2.

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9. Find the slope of the line which is parallel to :

$x + 2y + 3 = 0$

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10. Find the slope of the line which is parallel to :

$$\frac{x}{2} - \frac{y}{3} - 1 = 0$$

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11. Find the slope of the line which is perpendicular to :

$$x - \frac{y}{2} + 3 = 0$$

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12. Find the slope of the line which is perpendicular to :

$$\frac{x}{3} - 2y = 4$$

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13. Lines $2x - by + 5 = 0$ and $ax + 3y = 2$ are parallel to each other. Find the relation connecting a and b.

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14. Lines $mx + 3y = -7$ and $5x - ny = 3$ are perpendicular to each other. Find the relation connecting m and n.

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15. Find the value of p if the lines, whose equations are $2x - y + 5 = 0$ and $px + 3y = 4$ are perpendicular to each other.

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16. The equation of a line AB is

$2x - 2y + 3 = 0.$

Find the slope of the line AB.

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17. The equation of a line AB is

$2x - 2y + 3 = 0.$

Calculate the angle that the line AB makes with the positive direction of the x-axis.

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18. The lines represented by $4x + 3y = 9$ and $px - 6y + 3 = 0$ are parallel. Find the value of p.

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19. If the lines $y = 3x + 7$ and $2y + px = 3$ are perpendicular to each other, find the value of p.

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20. The line through A(-2, 3) and B(4, b) is perpendicular to the line $2x - 4y = 5$. Find the value of b.

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21. Find the equation of the line passing through (-5, 7) and parallel to :

x-axis

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22. Find the equation of the line passing through (-5, 7) and parallel to :

x-axis

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23. Find the equation of the line passing through (5, -3) and parallel to $x-3y=4$.

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24. Find the equation of the line parallel to the line $3x + 2y = 8$ and passing through the point $(0, 1)$.

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25. Find the equation of the line passing through (-2, 1) and perpendicular to $4x + 5y = 6$.

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26. Find the equation of the perpendicular bisector of the line segment obtained on joining the points (6, -3) and (0, 3).

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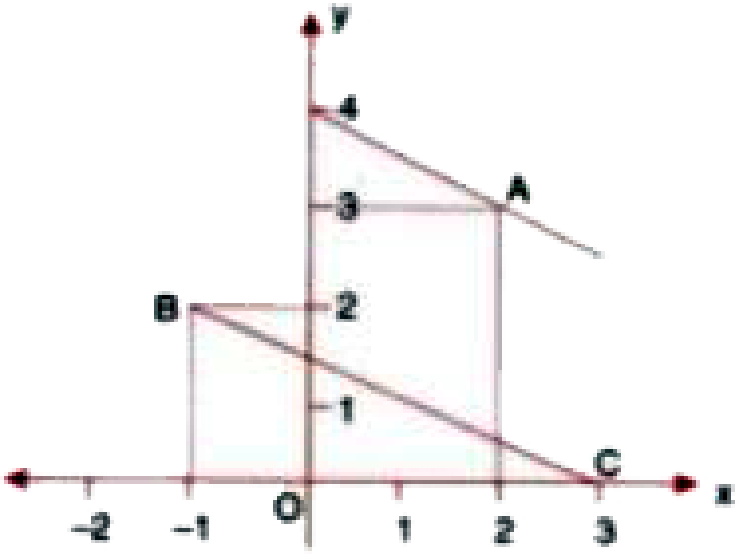
27. In the following diagram, write down :



the co-ordinates of the points A, B and C.

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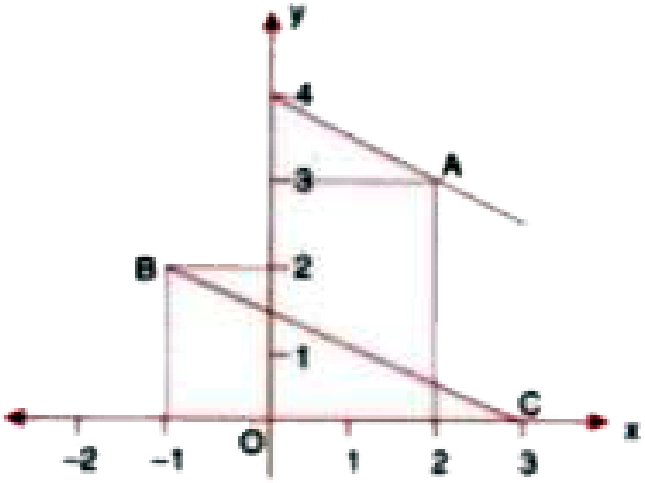
28. In the following diagram, write down :



the equation of the line through A and parallel to BC.

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29. B (-5, 6) and D (1, 4) are the vertices of rhombus ABCD. Find the equations of diagonals BD and AC.

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30. A = (7, -2) and C = (-1, -6) are the vertices of square ABCD. Find the equations of diagonals AC and BD.

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31. A (1, -5), B (2, 2) and C (-2, 4) are the vertices of triangle ABC. find the equation of:

the median of the triangle through A.

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32. A (1, -5), B (2, 2) and C (-2, 4) are the vertices of triangle ABC. find the equation of:

the altitude of the triangle through B.

 Watch Video Solution

33. A (1, -5), B (2, 2) and C (-2, 4) are the vertices of triangle ABC. find the equation of:

the line through C and parallel to AB.

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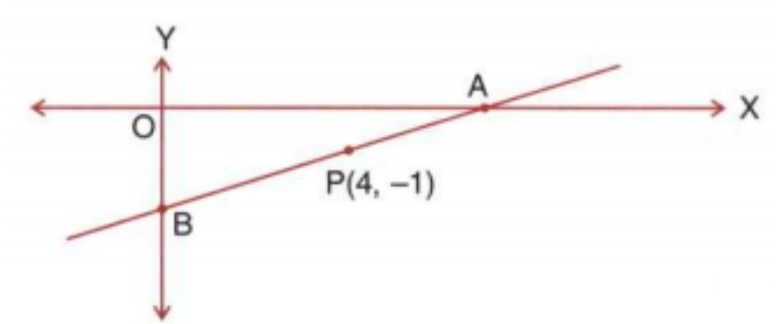
34. Write down the equation of the line AB, through (3, 2) and perpendicular to the line $2y = 3x + 5$.

Watch Video Solution

35. A line AB meets the x-axis at A and the y-axis at B. P(4,-1) divides AB in the ratio 1:2

(i) Write down the co-ordinates of A and B.

(ii)find the equation of the line through p and perpendicular to AB



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36. The line $4x - 3y + 12 = 0$ meets x-axis at A. Write the co-ordinates of A. Determine the equation of the line through A and perpendicular to $4x - 3y + 12 = 0$.

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37. The point P is the foot of perpendicular from A (-5, 7) to the line $2x - 3y + 18 = 0$. Determine :

the equation of the line AP

Watch Video Solution

38. The point P is the foot of perpendicular from A (-5, 7) to the line $2x - 3y + 18 = 0$. Determine : the co-ordinates of P and the equation of line AP

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39. The points A, B and Care (4, 0), (2, 2) and (0, 6) respectively. Find the equations of AB and BC.

If AB cuts the y-axis at P and BC cuts the x-axis at Q, find the co-ordinates of P and Q.

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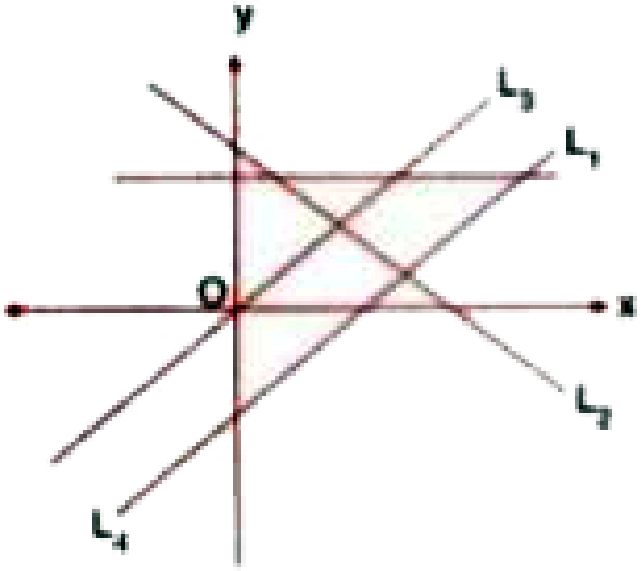
40. Match the equations A, B, C and D with the lines L_1, L_2, L_3 and L_4, whose graphs are roughly drawn in the given diagram.

$A \equiv y = 2x, \qquad B \equiv y - 2x + 2 = 0,$

$C \equiv 3x + 2y = 6, \qquad D = y = 2$



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41. Find the value of 'a' for which the following points A (a, 3), B (2, 1) and C (5, a) are collinear. Hence, find the equation of the line.

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Exercise 14 E

1. Point P divides the line segment joining the points A (8,0) and B (16, -8) in the ratio 3:5. Find its co-ordinates of point P.

Also, find the equation of the line through P and parallel to $3x + 5y = 7$.

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2. The line segment joining the points A (3,-4) and B (-2, 1) is divided in the ratio 1:3 at point P in it. Find the co-ordinates of P.

Also, find the equation of the line through P and perpendicular to the line $5x-3y=4$.

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3. A line $5x+3y+15=0$ meets y-axis at point P. Find the co-ordinates of point P. Find the equation of a line through P and perpendicular to $x-3y+4=0$.

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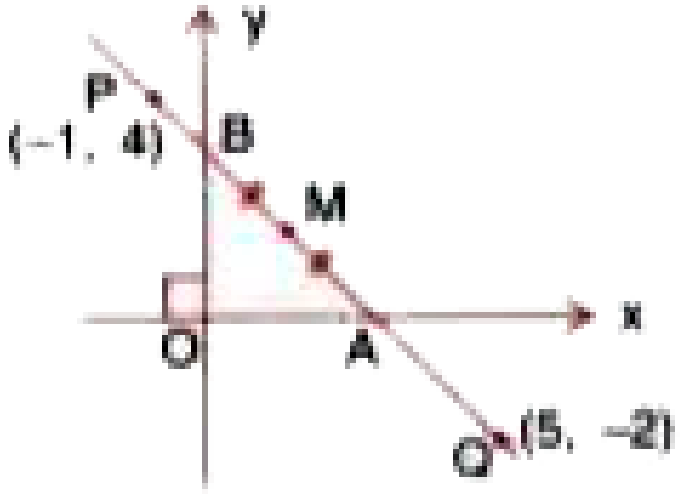
4. Find the value of k for which the lines $kx - 5y + 4 = 0$ and $5x - 2y + 5 = 0$ are perpendicular to each other

Watch Video Solution

5. A straight line passes through the points P(-1, 4) and Q(5,-2). It intersects the co-ordinate axes at points A and B. M is the midpoint of

the segment AB. Find :

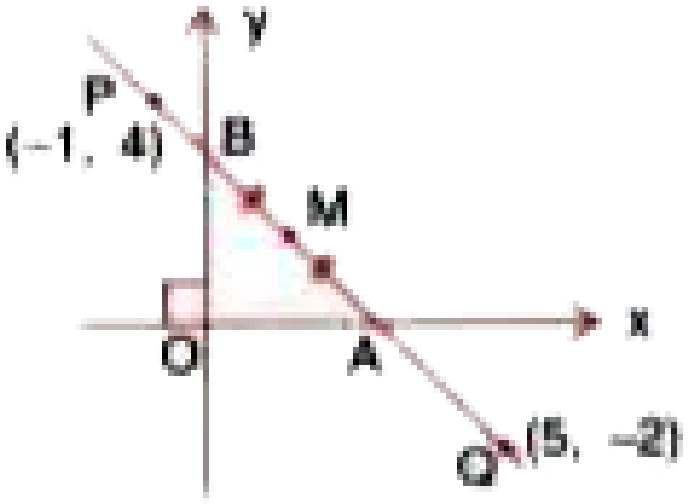


The equation of the line.

Watch Video Solution

6. A straight line passes through the points P(-1, 4) and Q(5,-2). It intersects the co-ordinate

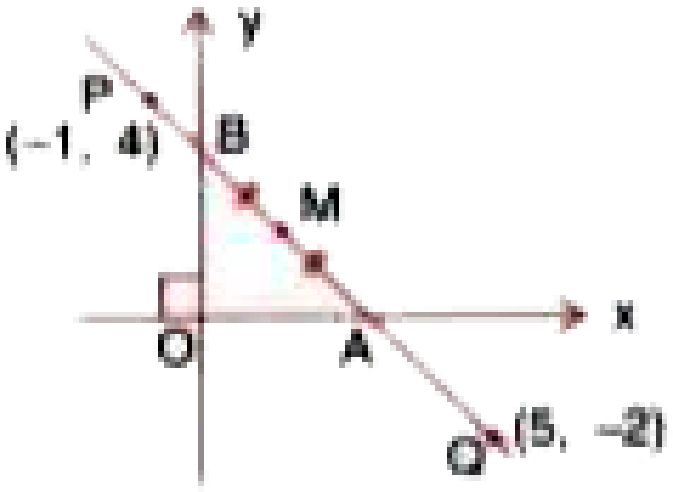
axes at points A and B. M is the midpoint of the segment AB. Find :



The co-ordinates of A and B.

Watch Video Solution

7. A straight line passes through the points P(-1, 4) and Q(5,-2). It intersects the co-ordinate axes at points A and B. M is the midpoint of the segment AB. Find :



The co-ordinates of M.

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8. (1, 5) and (-3, -1) are the co-ordinates of vertices A and C respectively of rhombus ABCD. Find the equations of the diagonals AC and BD.

 Watch Video Solution

9. Show that A (3, 2), B (6, -2) and C (2, -5) can be the vertices of a square.

Find the co-ordinates of its fourth vertex D, if ABCD is a square.

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10. Show that A (3, 2), B (6, -2) and C (2, -5) can be the vertices of a square.

Without using the co-ordinates of vertex D, find the equation of side AD of the square and also the equation of diagonal BD.

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11. A line through origin meets the line $x = 3y + 2$ at right angles at point X. Find the

co-ordinates of X.

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12. A straight line passes through the point (3, 2) and the portion of this line, intercepted between the positive axes, is bisected at this point. Find the equation of the line.

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13. Find the equation of the line passing through the point of intersection of $7x + 6y = 71$ and $5x - 8y = -23$, and perpendicular to the line $4x - 2y = 1$.

Watch Video Solution

14. Find the equation of the line which is perpendicular to the line $\frac{x}{a} - \frac{y}{b} = 1$ at the point where this line meets y-axis.

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15. O (0, 0), A (3, 5) and B (-5, -3) are the vertices of triangle OAB. Find :

the equation of median of triangle OAB through vertex O.

 Watch Video Solution

16. O (0, 0), A (3, 5) and B (-5, -3) are the vertices of triangle OAB. Find :

the equation of median of triangle OAB through vertex O.

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17. Determine whether the line through points (-2, 3) and (4, 1) is perpendicular to the line $3x = y + 1$.

Does line $3x = y + 1$ bisect the line segment joining the two given points ?

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18. Given a straight line $x\cos 30^\circ + y\sin 30^\circ = 2$. Determine the equation of the other line which is parallel to it and passes through (4, 3).

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19. Find the value of k such that the line

$(k-2)x + (k+3)y - 5 = 0$

perpendicualr to $2x - y + 7 = 0$.

Watch Video Solution

20. Find the value of k such that the line

$(k-2)x+(k+3)y-5=0$ is

parallel to the line $2x-y+7=0$

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21. The vertices of a triangle are A (0, 5), B (-1, -2) and C (11, 7). Write down the equations of BC and the perpendicular from A to BC and hence find the co-ordinates of the foot of the perpendicular.

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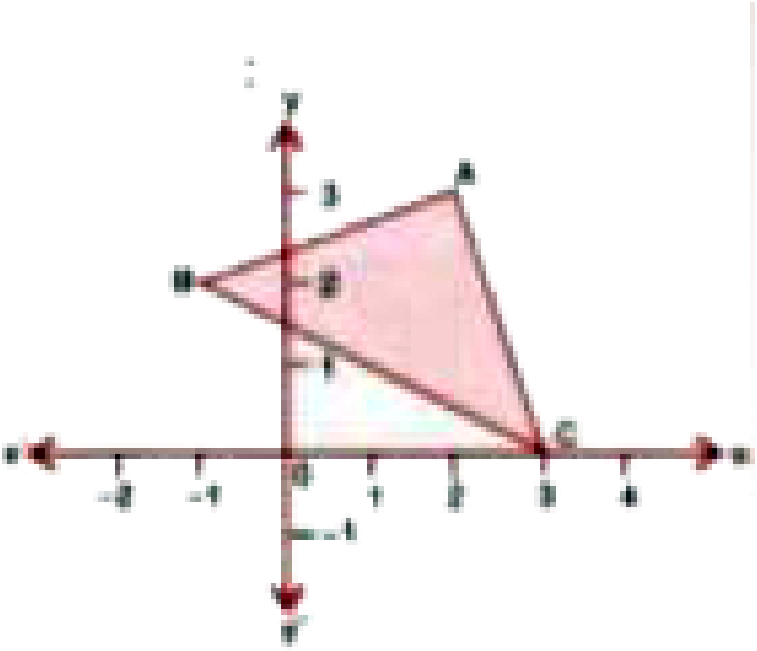
22. The vertices of a triangle are A (0, 5), B (-1, -2) and C (11, 7). Write down the equations of BC and the perpendicular from A to BC and hence find the co-ordinates of the foot of the perpendicular.

Watch Video Solution

23. From the given figure, find :



the co ordinates of A, B and C.

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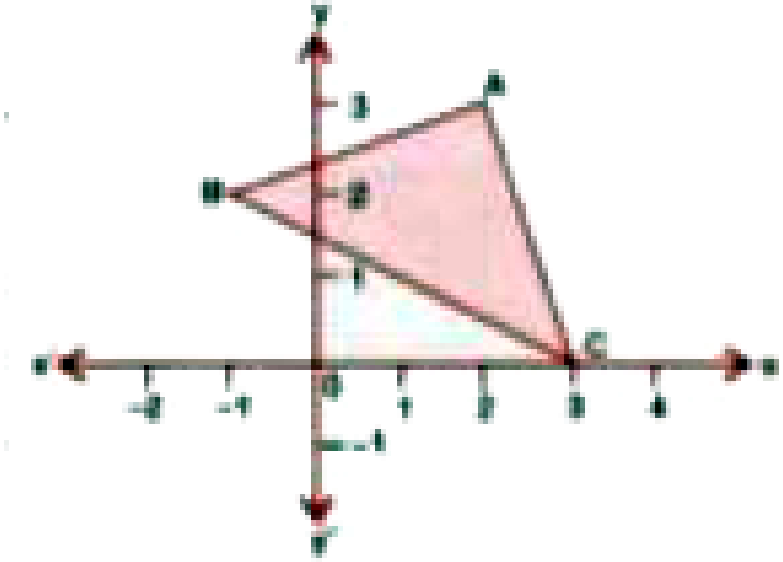
24. From the given figure, find :



the equation of the line through A and parallel to BC.

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25. P(3, 4), Q(7, -2) and R(-2, -1) are the vertices of triangle PQR. Write down the equation of the median of the triangle through R.

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26. A(8, -6), B(-4, 2) and C(0, -10) are vertices of a triangle ABC. If P is the mid-point of AB and Q is the mid-point of AC, use co-ordinate geometry to show that PQ is parallel to BC. Give a special name to quadrilateral PBCQ.

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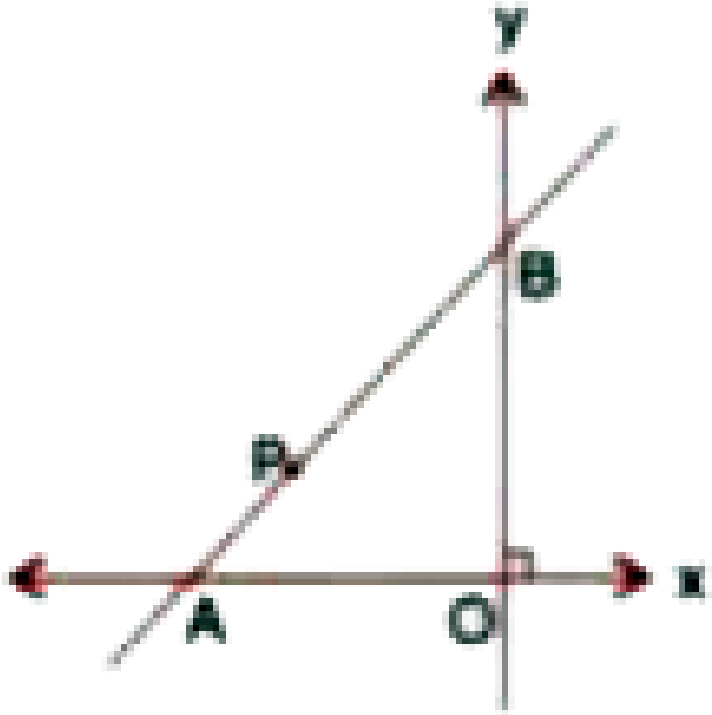
27. In the given figure, line APB meets the x-axis at point A and y-axis at point B. P is the point (-4, 2) and AP : PB = 1 : 2. Find the co-ordinates A and B .



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28. A line AB meets the x-axis at point A and y-axis at point B. The point P(-4,-2) divides the line segment AB internally such that AP : PB = 1:2. Find :

equation of line through P and perpendicular to AB.

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29. A line intersects x-axis at point (-2, 0) and cuts off an intercept of 3 units from the positive side of y-axis. Find the equation of the line.

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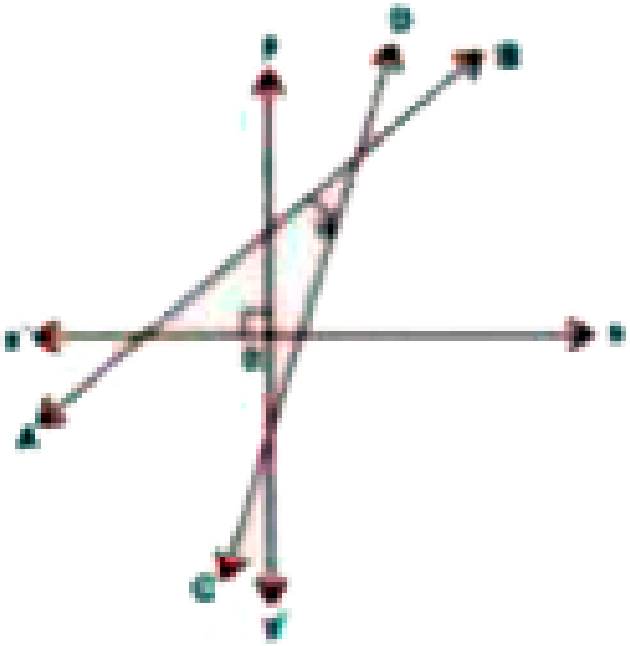
30. Find the equation of a line passing through the point (2, 3) and having the x-intercept of 4 units.

 Watch Video Solution

31. The given figure (not drawn to scale) shows two straight lines AB and CD. If equation of the line AB is : $y = x + 1$ and equation of line CD is : $y = \sqrt{3}x - 1$. Write down the inclination of lines AB and CD, also, find the angle θ

between AB and CD.



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32. Write down the equation of the line whose gradient is $\frac{3}{2}$ and which passes through P,

where P divides the line segment joining $A(-2, 6)$ and $B(3, -4)$ in the ratio 2 : 3.

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33. The ordinate of a point lying on the line joining the points (6, 4) and (7, -5) is -23. Find the co-ordinates of that point.

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34. Point A and B have co-ordinates (7, -3) and (1,9) respectively. Find :

the slope of AB.

Watch Video Solution

35. Point A and B have co-ordinates (7, -3) and (1,9) respectively. Find :

the equation of perpendicular bisector of the line segment AB.

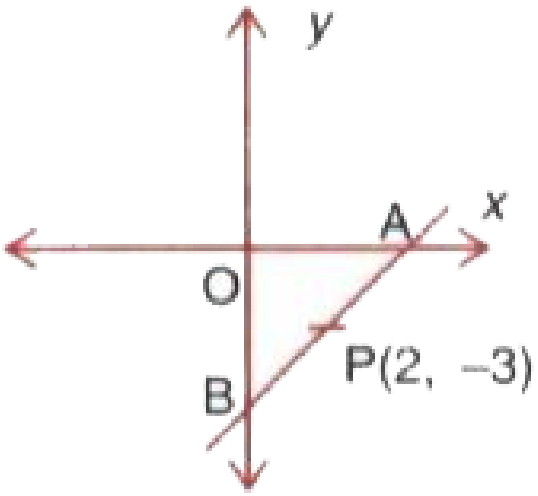
Watch Video Solution

36. Point A and B have co-ordinates (7, -3) and (1,9) respectively. Find :

the value of 'p' if (-2, p) lies on it.

Watch Video Solution

37. A and B are two points on the x-axis and y-axis respectively. P(2, -3) is the mid point of AB. Find the



co-ordinates of A and B.

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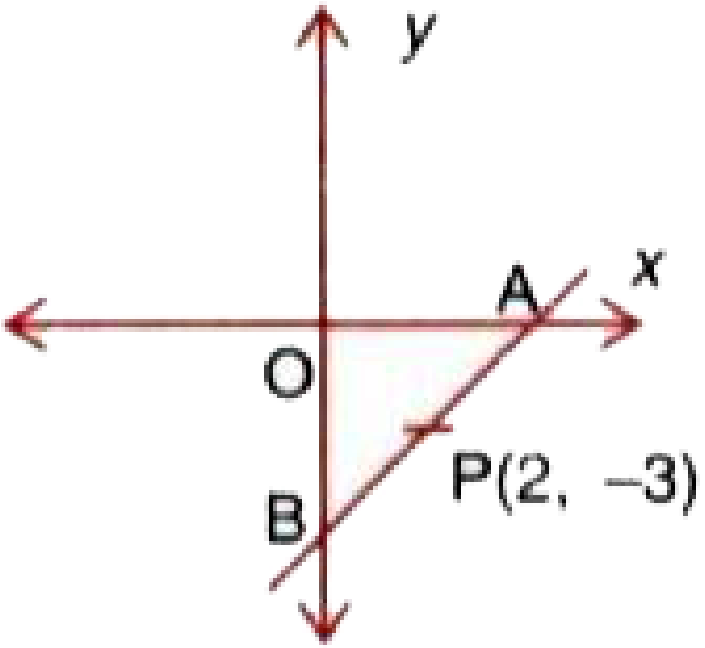
38. A and B are two points on the x-axis and y-axis respectively. P(2, -3) is the mid point of AB.

Find the



slope of line AB

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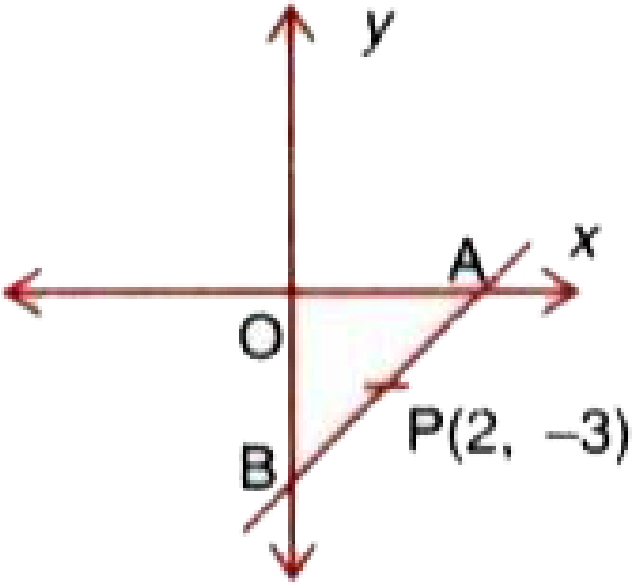
39. A and B are two points on the x-axis and y-axis respectively. P(2, -3) is the mid point of AB. Find the



equation of line AB.

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40. The equation of a line is $3x + 4y - 7 = 0$.

Find:

the slope of the line.

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41. The equation of a line is $3x + 4y - 7 = 0$.

Find:

the equation of a line perpendicular to the given line and passing through the

intersection of the lines $x - y + 2 = 0$ and $3x + y - 10 = 0$.

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42. ABCD is a parallelogram where $A(x, y), B(5, 8), C(4, 7)$ and $D(2, -4)$.

Find :

co-ordinates of A

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43. ABCD is a parallelogram where A (x, y), B (5, 8), C (4, 7) and D 2, -4). Find

(ii) Equation of diagonal BD.

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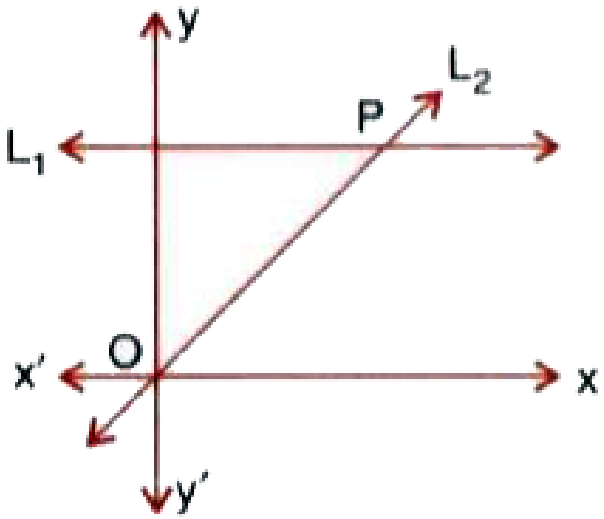
44. Given equation of line L_1 is $y = 4$



Write the slope of line L_1 if L_2 is the bisector of angle O.

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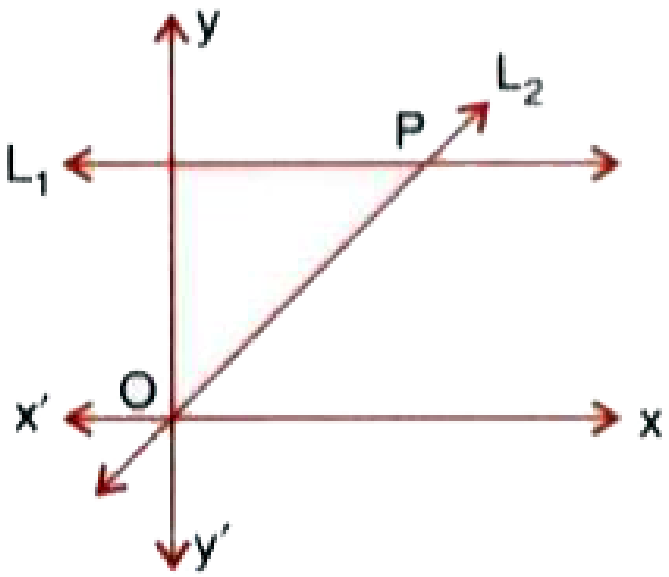
45. Given equation of line L_1 is $y = 4$



Write the co-ordinates of point P.

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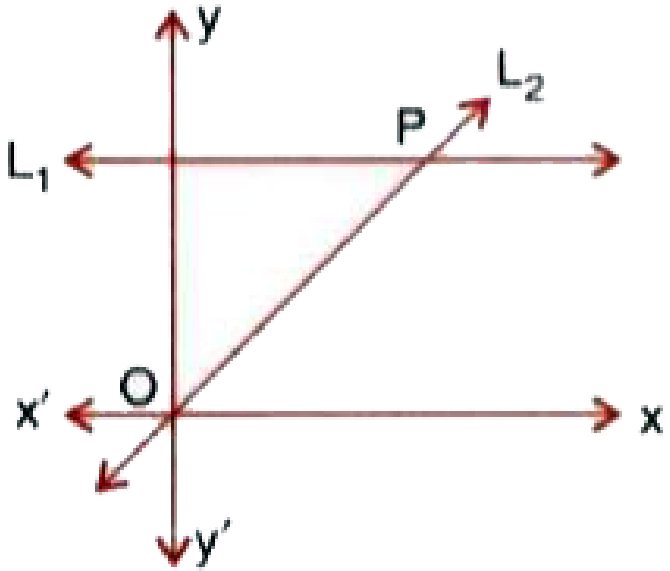
46. Given equation of line L_1 is $y = 4$



Find the equation of L_2.

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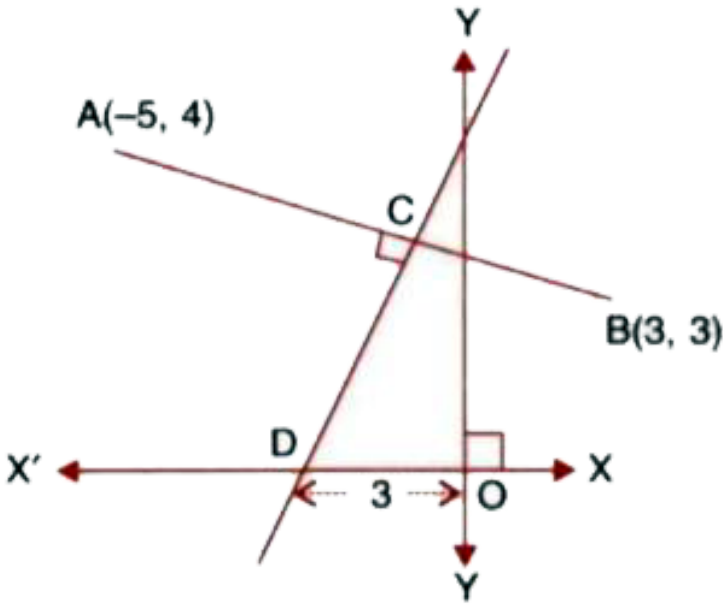
47. Find :



equation of AB

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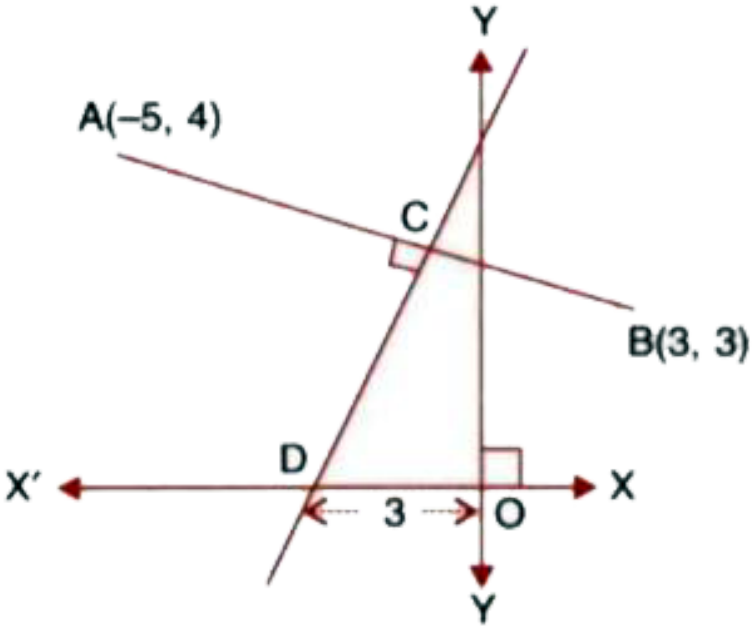
48. Find :



equation of CD

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49. Find the equation of the line that has x-intercept = -3 and is perpendicular to $3x + 5y = 1$.

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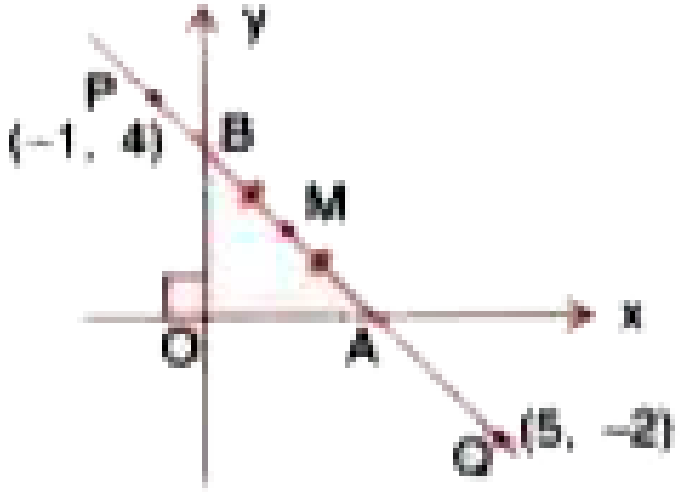
50. A straight line passes through the points P(-1, 4) and Q(5,-2). It intersects the co-ordinate axes at points A and B. M is the midpoint of the segment AB. Find :



The equation of the line.

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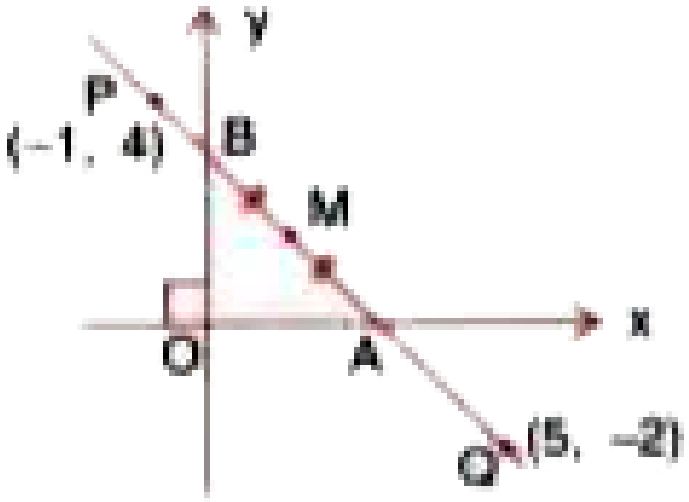
51. A straight line passes through the points P(-1, 4) and Q(5,-2). It intersects the co-ordinate axes at points A and B. M is the midpoint of

the segment AB. Find :



The co-ordinates of A and B.

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52. A straight line passes through the points $P(-1, 4)$ and $Q(5, -2)$. It intersects x-axis

at point A and y-axis at point B. M is the midpoint of the line segment AB. Find :

the co-ordinates of point M.

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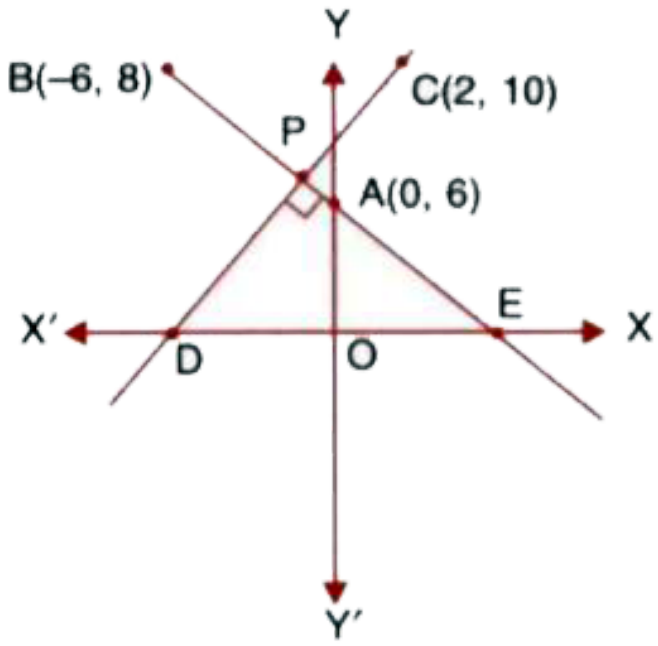
53. In the given figure, line AB meets y-axis at point A. Line through C(2, 10) and D intersects line AB at right angle at point P. Find :



equation of line AB.

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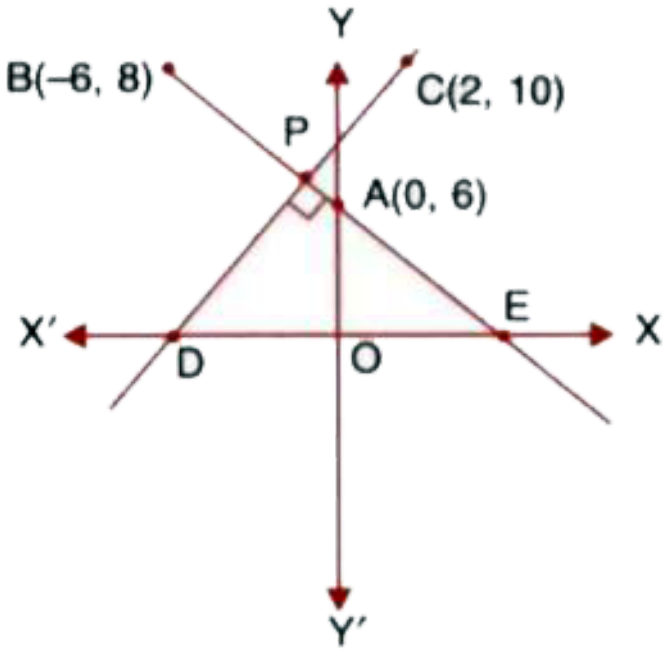
54. In the given figure, line AB meets y-axis at point A. Line through C(2, 10) and D intersects

line AB at right angle at point P. Find :



equation of line CD.

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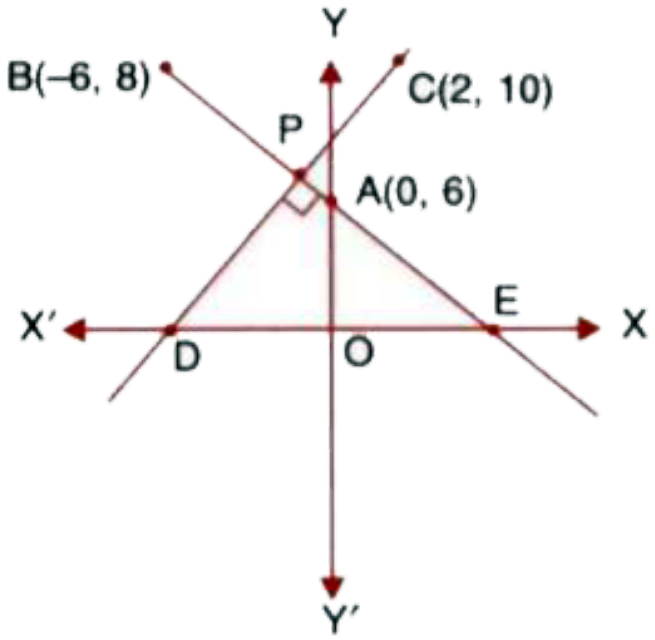
55. In the given figure, line AB meets y-axis at point A. Line through C(2, 10) and D intersects line AB at right angle at point P. Find :



co-ordinates of points E and D.

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56. A line through point P(4, 3) meets x-axis at point A and the y-axis at point B. If BP is double of PA, find the equation of AB.

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57. Find the equation of line through the intersection of lines $2x - y = 1$and $3x + 2y = -9$ and making an angle of 30° with positive direction of x-axis.

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58. Find the equation of the line through the points A(-1, 3) and B(0, 2). Hence, show that the points A, B and C(1, 1) are collinear.

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59. Three vertices of a parallelogram ABCD taken in order are A (3, 6), B (5, 10) and C (3, 2) find :

(i) the coordinates of the fourth vertex D.

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60. Three vertices of a parallelogram ABCD taken in order are A (3, 6), B (5, 10) and C (3, 2) find :

(ii) length of diagonal BD.

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61. Three vertices of a parallelogram ABCD taken in order are A (3, 6), B (5, 10) and C (3, 2) find :

(iii) equation of side AB of the parallelogram ABCD.

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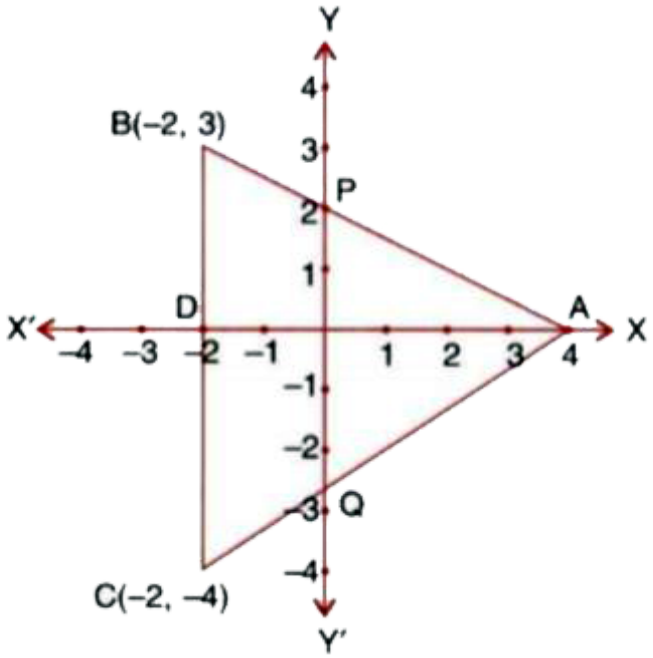
62. In the figure, given, ABC is a triangle and BC is parallel to the y-axis. AB and AC intersect the y-axis at P and Q respectively.



Write the co-ordinates of A.

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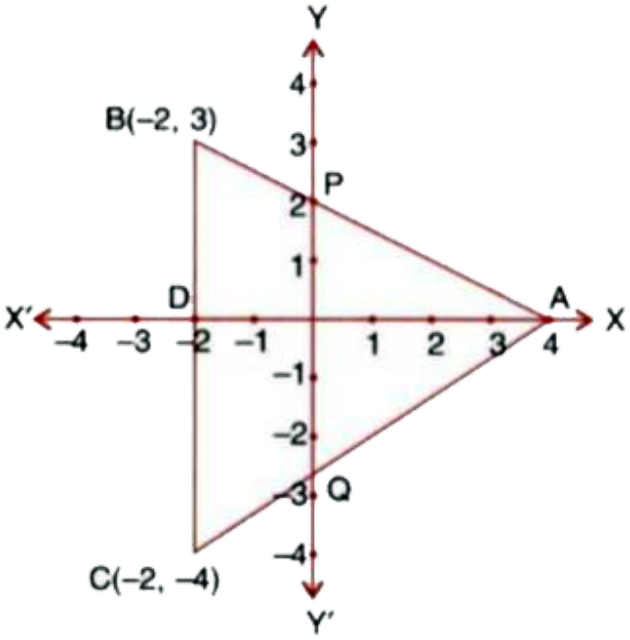
63. In the figure, given, ABC is a triangle and BC is parallel to the y-axis. AB and AC intersect the

y-axis at P and Q respectively.



Find the length of AB and AC.

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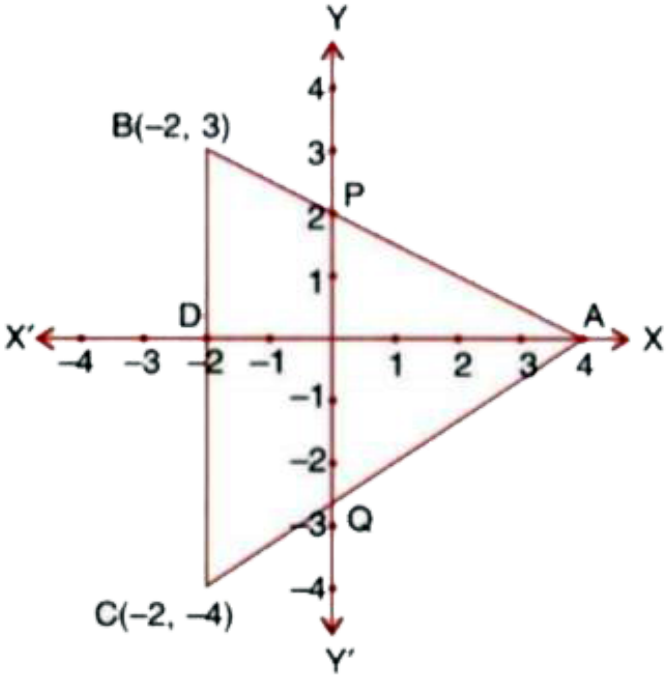
64. In the figure, given, ABC is a triangle and BC is parallel to the y-axis. AB and AC intersect the y-axis at P and Q respectively.



Find the ratio in which divides AC.

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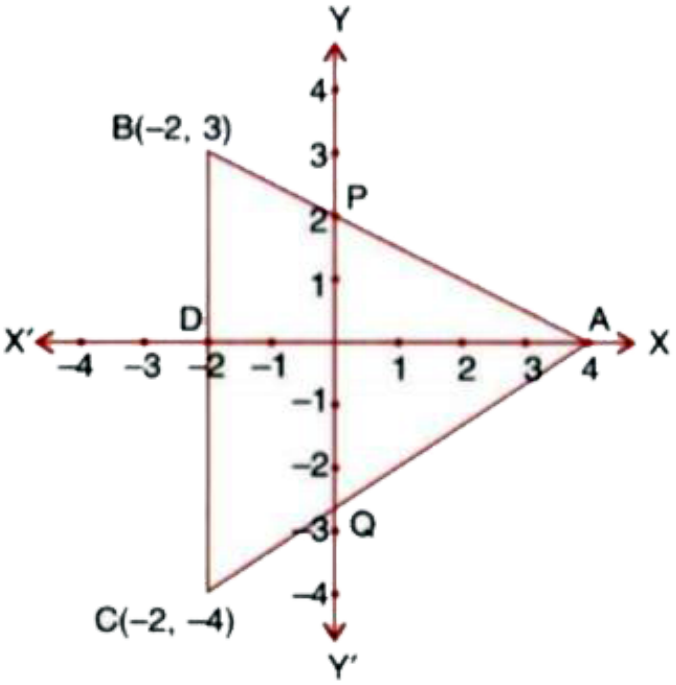
65. In the figure, given, ABC is a triangle and BC is parallel to the y-axis. AB and AC intersect the y-axis at P and Q respectively.



Find the equation of the line AC.

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66. The slope of a line joining P(6, k) and Q(1 - 3k, 3) is $\frac{1}{2}$. Find :

(i) k

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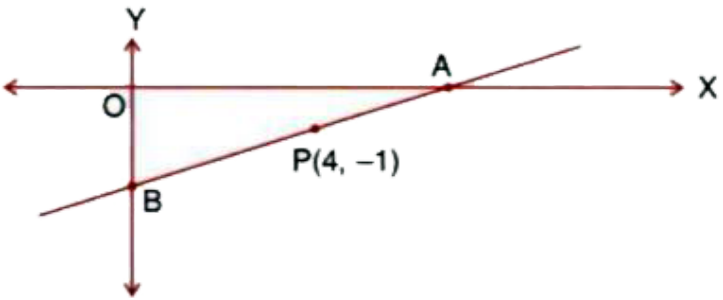
67. A line AB meets X-axis at A and Y-axis at B. $P(4, -1)$ divides AB in the ratio 1:2.



Find the co-ordinates of A and B.

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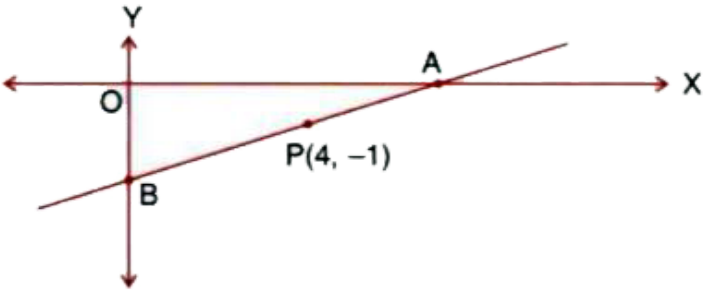
68. A line AB meets X-axis at A and Y-axis at B.

$P(4, -1)$ divides AB in the ratio 1:2.



Find the Coordinates of A and B

Watch Video Solution