1. The graph of which line is parallel to x-axis
(a) x = 2 (b) y = 2 (c) x + y = 2 (d) none of these

Equation of LINE which is parallel to x axis will be Y is equals to 2 because Y coordinate of all the points on that line will be same

2. The graph of which line is parallel to y-axis (a) x = 2 (b) y = 2 (c) x + y = 2 (d) none of these

Equation of LINE which is parallel to y axis will be X is equals to 2 because x coordinate of all the points on that line will be same

3. The graph of which line lies in IS` and HIrd quadrants (a) 2x+y=0 (b) x + y = 0 (c) x - y= 0 (d) none of these

Correct option is see because only points of this line lies in first and third quadrant

4. The graph of which line lies in IInd and IV`" quadrants. (a) x+y=0 (b) x-y=0 (c) 2x - y = 2 (d) none of these

Correct option is Option A because only points of this line lies in second and fourth quadrant

5. The graph of which line is equally inclined to both axes. (a) 4x-y= 0 (b) 3x-y=0 (c) 2x-y= 0 (d) x - y = 0
Correct option is option d because this line passes through origin and therefore inclined to both axis

6. The graph of which line lies on x-axis
(a) 2x = 0 (b) 2y = 0 (c) 3x = 0 (d) none of these
Correct option is option B because graph of x axis lies on x axis and its equation is y is equals to zero

7. The graph of which line lies on y-axis

(a) 2x= 0 (b) 2y = 0 (c) 3y = 0 (d) none of these

Correct option is option A because graph of y axis lies on y axis and its equation is x=0

8. Which line is parallel to x + y = 2 .

(a) y=x+2 (b) y=x+3 (c) y= 3 - x (d) x=y+5

Correct option is option see because graph of both the lines is is equally inclined to x axis

9. The graph of the line y =| x | lies in

(a) 1s` and III`d quadrant (b) Is` and IInd quadrant (c) IInd and Wth quadrant (d) none of these

Correct option is option b because all the points offline lies in first and second quadrant

10. Which of the line passes through origin (0, 0)

(a) 3x-4y=3 (b) y = 2x+ 4 (c) y - 2x = 1 11 (d) y-x=0.

Correct option is option d because all the points of that line are of equal Coordinates

11. Which of the point lies on the line 2x + 5y= 13

(a) (1, 1) (b) (4, 1) (c) (-1, 1) (d) (0, 3)

Correct option is option b because coordinates of that point satisfy the equation of given line

12. Which of the lines is not parallel to other three lines.

(a) y=2x+3 (b) y = 2x - —3 (c) 3x -y = 0 (d) 2x - y - 0

Correct option is option C because that line is not parallel to the remaining lines

13. If (p, 4) point lies on the line 3x + y =10 , value of p is

(a) 5 (b) 1 (c) 3 (d) 2

as the given point lies on the line then coordinates of the given point should satisfy the equation of given line so
If we put value of x as p and value of Y as 4 then we will get the value of p as 2

14. If expressions 2x -20 and 48 - 2x are equal then value ofx is

(a) 17 (b) 15 (c) 16 (d) 20

If we equate both the given expressions then the value of x will be equal to 14

15. If x =1,y =1 is a solution of equation 5x + ky =11, then value of k is

(a) 1 (b) 11 (c) 6 (d) 5

We put the value of x as 1 and value of Y as 1   in the given equation of line then we will get the value of k is equals to 6

16. A linear equation in two variables ax + by +c = 0 , has

(a) one solution (b) many solutions (c) no solution (d) none of these

Correct option is option b because line will have many solution as there will be infinite points on the line

17. Which one is a linear equation?

(a) x(x + 5). -x(3- x)+ 7 (b) (x -1)(x -2). 5 (c) x+ =1 (d) none of these

Correct option is option A because it satisfy the property and definition of linear equation

18. Which of the following line does not pass through origin?

(a) x + y = 0 (b) x- y = 0 (c) x +2y = 0 (d) y = x +1

Correct option is option d because coordinates of origin does not satisfy the equation of this line

**19. For each value of x, which of the following equation has same ordinate**

(a) 2y + 5 = 0 (b) 2x+5=0 (c) 2x-5 = 0 (d) 2x +3y =1

Correct option is option A because Y co-ordinate of this line will always be same

20. Which of the following is the alternative representation of the equation 2x +9 = 0

(a) 3x = -9 (b) 0.x + 2y + 9 = 0 (c) 2x + 0.y —9 (d) 2x + 0.y = 9

Correct option is option C because this equation represents the alternative of the given equation
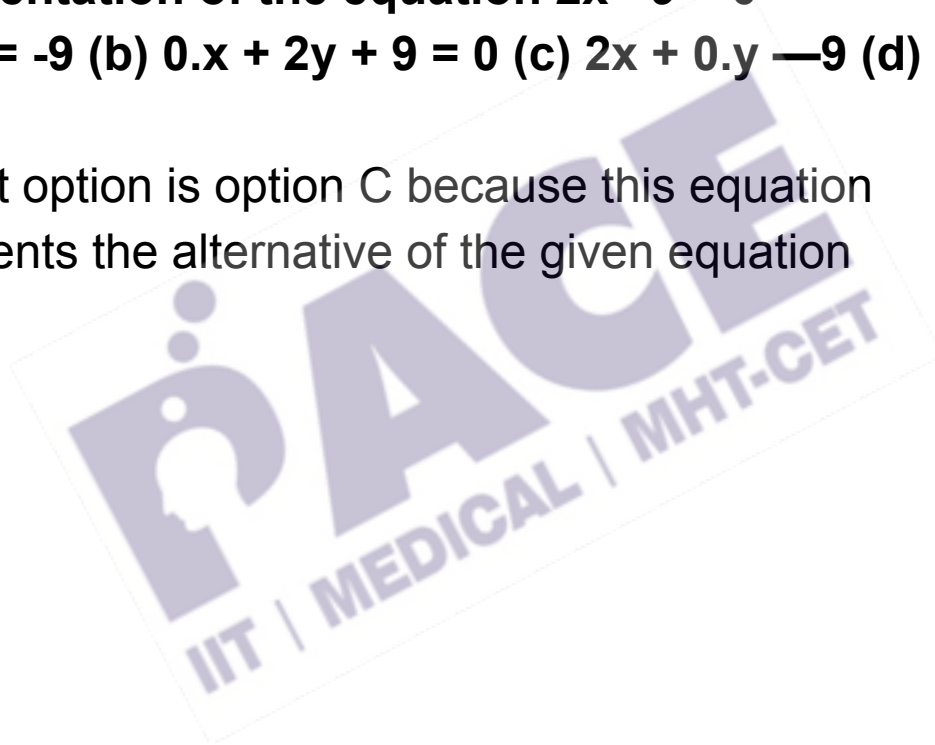
Level - 2

21. The numerator of a fraction is 6 less than the denominator. If 3 is added to the numerator, the fraction is equal to 2/3. What is the original fraction equal to? (a) -1 (b) -1 (c) 5 (d) - 6 2 3

Let the denominator be x

then, numerator = x-6

according to question ,

=> (x-6)+3/x = 2/3

=> (x-6+3)/x = 2/3

=> (x-3)/x = 2/3

=> 3(x-3) = 2x

=> 3x-9 = 2x

=> 3x-2x = 9

=> x = 9. (denominator)

numerator = x-6 => 9-6 = 3

then , fraction = 3/9

22. Sunita is twice as old as Ashima. If six years is subtracted from Ashima's age and four years added to Sunita's age, then Sunita will be four times Ashima's age. What are their present ages?

(a) 18, 12 (b) 28, 14

(c) 16, 10 (d) 8, 12

Let the age of Sunita be x and the age of Ashima be y.

Sunita is twice as old as ashima

$\Rightarrow x = 2y$

$\Rightarrow x - 2y = 0$ ------------------ (1)

Six years subtracted from Ashima's age = (y - 6)

Four years added to Sunita's age = (x + 4)

$\Rightarrow (x + 4) = 4(y - 6)$

$\Rightarrow (x + 4) = 4(y - 6)$

$\Rightarrow x + 4 = 4y - 24$

$\Rightarrow x - 4y = -28$ ----------------- (2)

Solving equations (1) and (2), we get x = 28 and y = 14.

Therefore, present age of Sunita is 28 years and the present age of Ashima is 14 years.

23. Ravish has three boxes whose total weight is 60-14. Box B weights 3-1kg. more than box A and 2 2 1 box C weights 5-2kg. more than box B. Find the weight of box A.

(a) 25 (b) 16 (c)9 2 (d) 18

24. Find the area of the region bounded by the semicircle whose diameter is 14cm and centre at origin and the lines y = -x+7 and y = x+ 7 . (semicircle lies above the x-axis) (a)105 sq. unit (b) 112 sq. unit (c) 28 sq. unit (d) 420 sq. unit
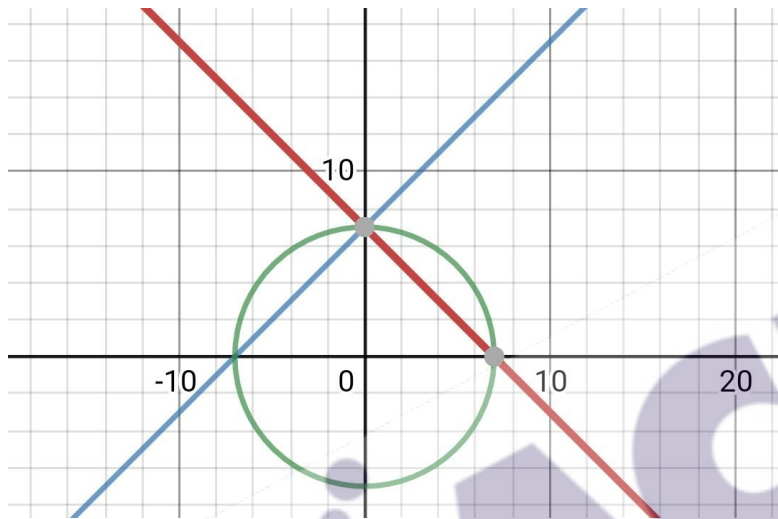
We will subtract the area of triangle from the area of semicircle above the x-axis to get the required area

25. Find the area of the triangle formed by the lines y = 2 , x=4and y =l 2 x + 2
(a) 8 (b) 4 (c) 12 (d) 6
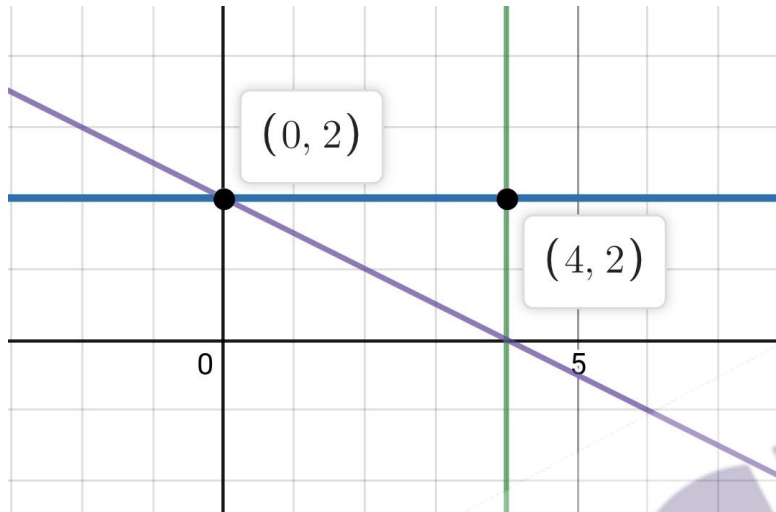
Define the required area we will find the area of the triangle made in the above figure by the three lines

Express the following linear equations in the general form ax + by + c = 0 and indicate the values of a, b and c in each case.

1. -x+5=2.5y
a = 2, b = 5, c = -10

2. x+2 =5 y
a = 1, b = -5, c = -3

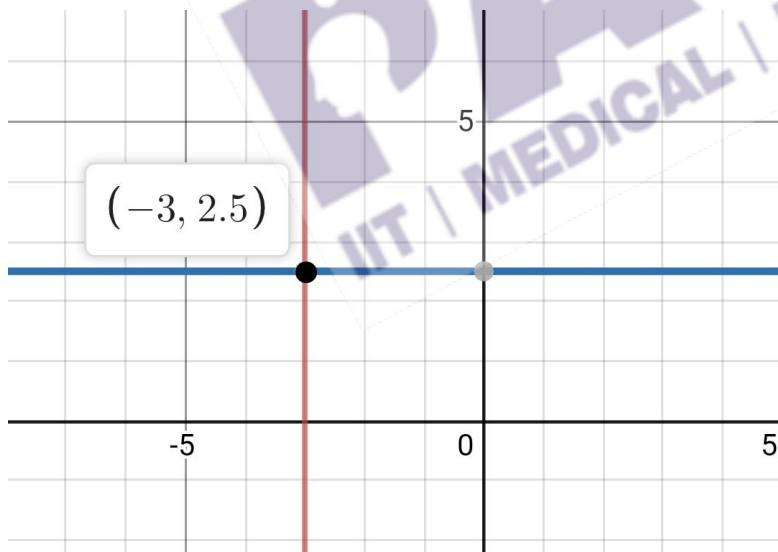**3. 5 =9y**

a = 0, b = 9, c = -5

4. 5x+2y=7

a = 5, b = 2, c = -7

5. 3y = —6x+9

a = 6, b = 3, c = -9

6. Find the point of intersection of the lines 3x + 9 = 0 and 2y — 5 = 0.

$(-3, 2.5)$

7. The cost of a fountain pen is thrice the cost of a ball pen. Write a linear equation in two variables to represent this statement.

Let the cost of Fountain pen be 'f'

let the cost of ball pen be 'b'

$f = 3b$

8. The cost of a note book is Rs.12 less than one third the cost of a Mathematics text book. Write a linear equation in two variables to represent this statement.

Answer is => $N = \frac{1}{3}M - 12$

9. The fair of a child passenger is Rs.5 and an adult passenger is Rs.15. Total cost for all tickets purchased is Rs.175. Write a linear equation in two variables to represent this statement.

Let the cost of a child passenger is 'C'

Let the cost of a Adult passenger is 'A'

=> $5C + 15A = 175$

10. Find the three solutions of the equation

(i) 3(2x — 5) — 2(y + 7) = 1

(0,-15),(5,0),(1,-12)

(ii) y = 7—x +1

(0,1),(7,2),(14,3)

11. Find the points where the line 3x-2y=1 cuts the x-axis and y-axis.

If we put x = 0 we get y=-½
If we put y = 0 we get x=1/3

12. Find the value of 'a' if (2,3) lies on the equation a2x–ay-2 =0

As this point lies on the line whose equation is given so to find the value which is required be put the coordinates of this point in the equation of line

X = 2, y = 3

13. Find the point at which the line represented by the equation 3x + 4y +12 = 0 cuts X-axis.

14. Find the ordinate of a point lying on 2x – 5y + 10 = 0, whose abscissa is 7.

15. Find the distance of the point (-4, –3) from the origin.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Use above formula to find distance
Origin O(0,0)
Pt. (-4,-3)

16. If (a+2, 2a-3) lies on the line 7x – 8y = 9, then find 'a'.
As this point lies on the line whose equation is given so to find the value which is required be put the coordinates of this point in the equation of line
X = a+2, y = 2a-3

18. Write the equation of the line parallel to X-axis and passing through the point (2012, 2012).

19. Write the equation of the line parallel to Y-axis and passing through the point (-2013, 2012 x 2102 2102 x 2012)

20. If the point (7, – 9) lies on the graph of the linear equation 3x + ky – 5 =0, then find 'k'.

As this point lies on the line whose equation is given so to find the value which is required be put the coordinates of this point in the equation of line

X = 7, y = -9

2. Find the point of intersection of all the lines represented by ax + by + c = 0, where a,b * 0, c = 0.

Required point is =>(0,0),

Because all the lines represented by the given equation will have the points with equal coordinates

3. Find the area of the triangle whose vertices are (-3, 0), (3, 0) and (7, 8) by plotting on graph.

2 a +ab+b 2 4. Prove that x – , y = abis a solution of the equation bx–ay = b2. a +b a+b

5. Show that x =m + n, y = m + n is a solution of the equation: (x +y) (m2 +n2) = 2(m3 + n3) + mn(x + y).

6. Find the area of the circle inscribed inside the square formed by the lines x = 2, x = 8, y = 3 and y=-3.

7. Find the value of 'a' so that x =2, y = -3 is a solution of the equation 3ax + 7(3 + ay) = 6.

8. Which quadrant contains the point (2013^2012 x 2012^2011,0)?

9. Find the circumcenter of the figure formed by the lines x — 2 = ±1 and y — 1 = ±2.

10. State True/ False: (i) The equation ax + by + c = 0 represents a straight line always for any real values of a, b and c. (ii) The lines ax + by + Cl = 0 and ax + by + c2 = 0 represents 2 parallel straight lines for all real values of a, b and c.

11. Find the value of ab + ba, if the point (2, 3) lies on the lines x — y + a = 0 and 4x — 3y = b.
As this point lies on the lines whose equations are given so to find the value which is required be put the coordinates of this point in the equations of lines one by one
X = 2, y = 3 to get the value of 'k'

12. A boat goes 30 km upstream and 44km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55km downstream. Determine the speed of stream and that of the boat in still water.

Let speed of boat in still water be x km/h and speed of stream be y km/h.

Speed upstream= (x - y) km/h

Speed downstream= (x + y) km/h

Let $\dfrac{1}{x-y} = a$ and $\dfrac{1}{x+y} = b$

$\dfrac{30}{x-y} + \dfrac{44}{x+y} = 10 \Rightarrow 30a + 44b = 10 \Rightarrow 120a + 176b = 40$

$\dfrac{40}{x-y} + \dfrac{55}{x+y} = 13 \Rightarrow 40a + 55b = 13 \Rightarrow 120a + 165b = 39$

On subtracting, we get,

$b = \dfrac{1}{11}$

$\therefore 30a + 4 = 10 \Rightarrow 30a = 6 \Rightarrow a = \dfrac{1}{5}$

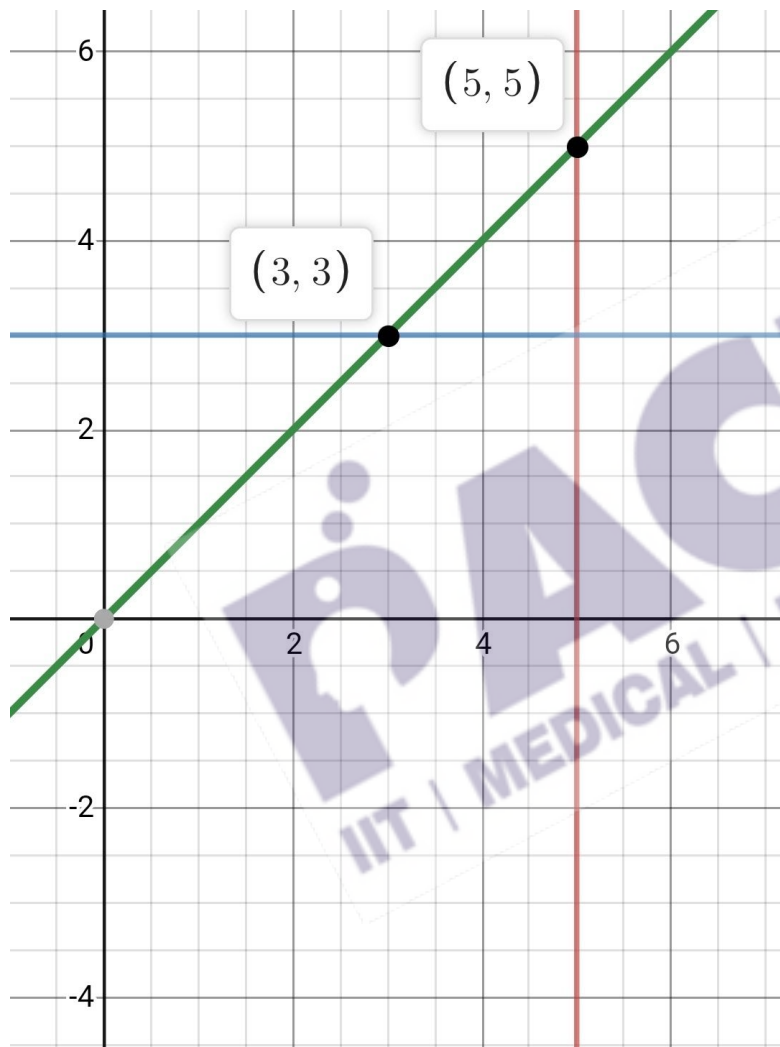$\therefore x - y = 5$ and $x + y = 11$

On solving, we get,

$x = 8, \quad y = 3$

$\therefore$ Speed of boat in still water = 8 km/h

And, Speed of stream = 3 km/h

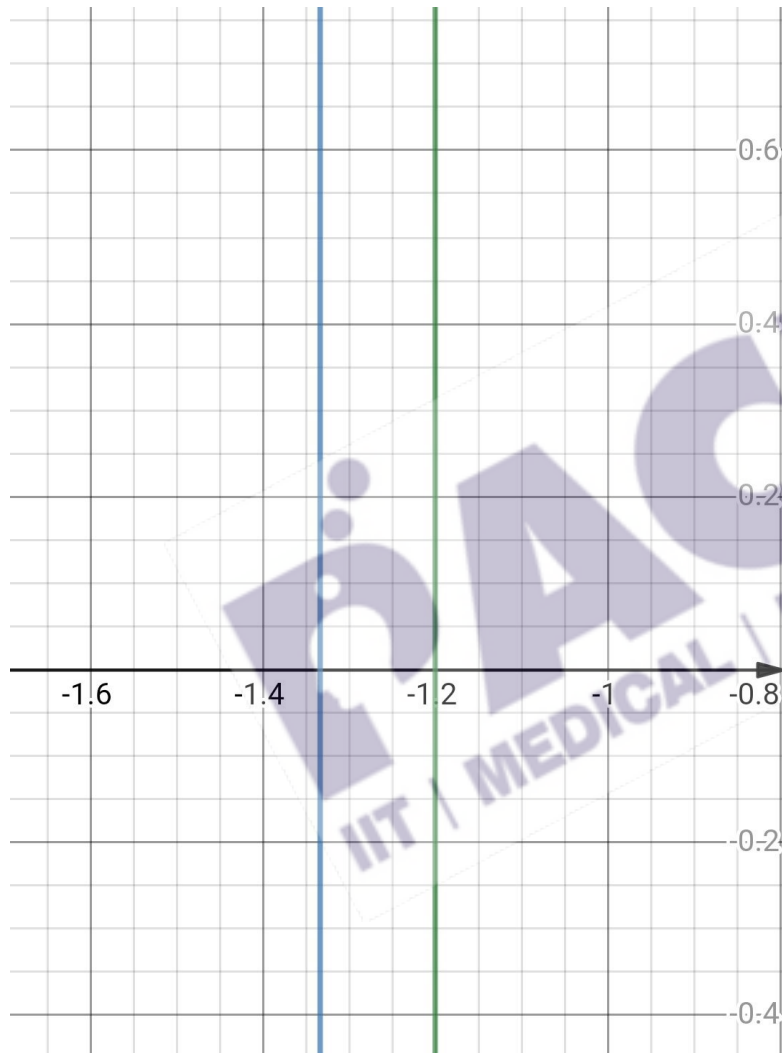**13. Find the area of triangle formed by the lines x = 5, y = 3 and x = y.**

To find the required area, we find the area of above triangle
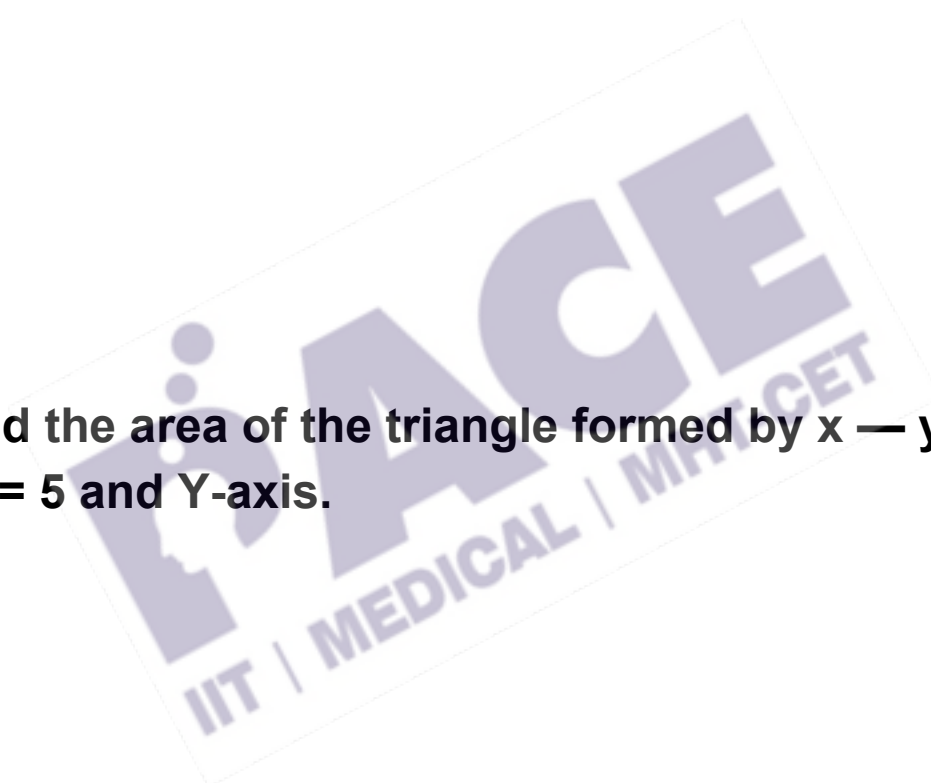
14. If the graph of the equation 3x — 4.y =12 cuts the coordinate axes at A and B, then find the length of
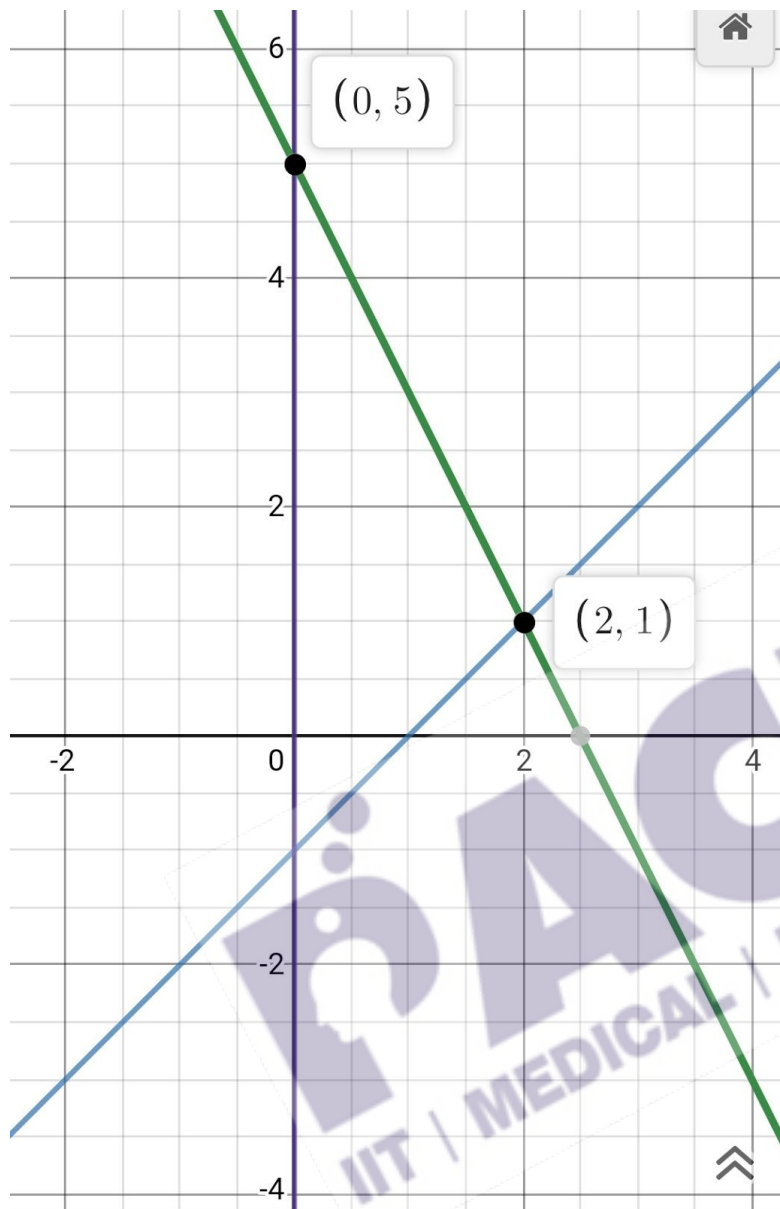
hypotenuse of right angled triangle AOB and also area of triangle AOB.

15. Find the distance between the lines represented by the equations $3x + 4 = 0$ and $5x + 6 = 0$.

16. Find the area of the triangle formed by x — y = 1, 2x + y = 5 and Y-axis.

To find the required area, we find the area of above triangle

17. A father is 7 times as old as his son. Two years ago, the father was 13 times as old as his son. What is the present age of son?

At present

_____

Age of the son = x years

Father's age = 7x years

2 years ago

_____

Son's age = (x - 2) years

Father's age = (7x - 2) years

According to the problem given,

7x - 2 = 13 (x - 2)

7x - 2 = 13x - 26

7x - 13x = -26 + 2
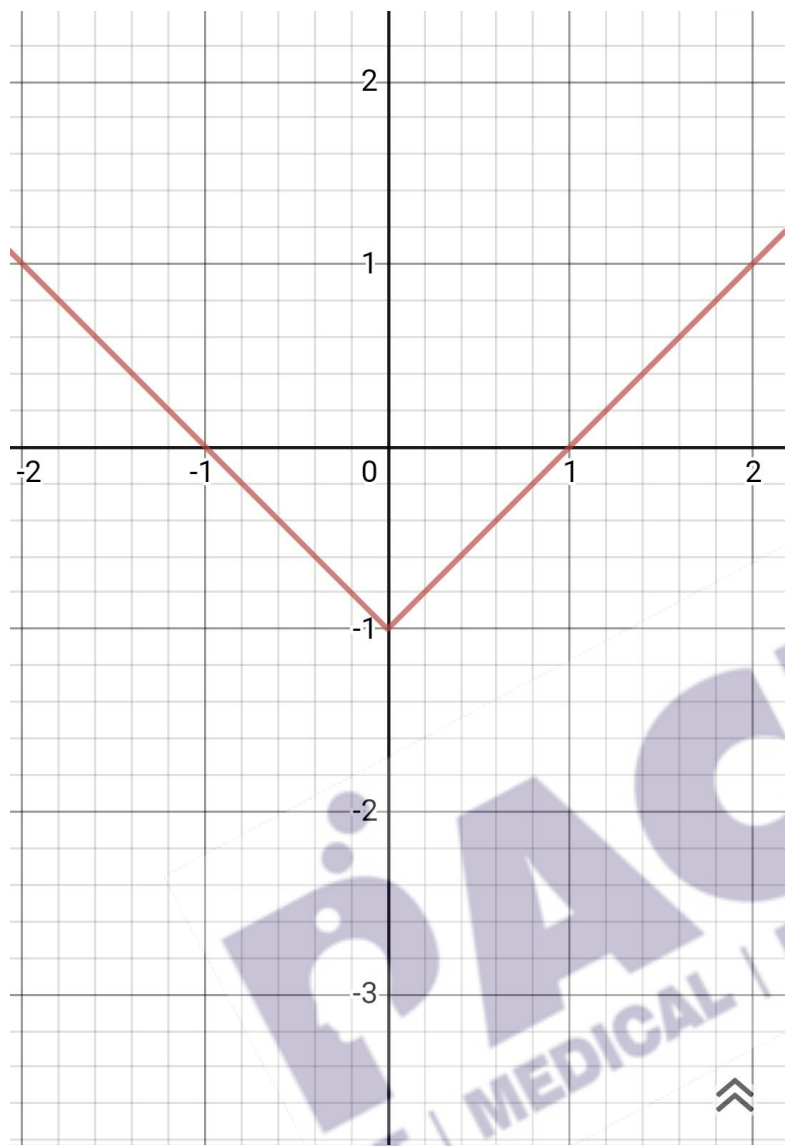
-6x = -24

x = (-24) / (-6)

x = 4

Therefore ,

At present ,

Son age = x = 4years

Father's age = 7x = 7 × 4 = 28years

18. Draw the graph of y = lxl— 1.