



MATHS

BOOKS - NAGEEN PRAKASHAN ENGLISH

LINEAR EQUATIONS IN TWO VARIABLES

Solved Examples

1. Show that $x=2, y=1$, satisfy the linear equation $7x+4y=18$

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2. Find four different solution of the equation $x+5y=20$.

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3. Draw the graph of $y=2x$.

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4. Draw the graph of the straight line given by equation $5x+6y=30$. Use this graph to find the area of the triangle by this line and the co-ordinate axes.

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5. Draw the graph of the equation $x+2y =4$, use graph to find :

(a) X_1 , the value of x when $y = 4$ (b) Y_1 the value of y when $x= -2$

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6. Draw the graphs of $x =0, y =0,x=a,y=b$

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7. On a graph paper, draw a straight line represented by the equation

$$2x - 3y + 12 = 0.$$

Use the graph drawn to find the values of m and n so that the points

$(m, -2)$ and $(3, n)$ lies on the given straight line.

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8. Given the equation of two straight lines passing through $(-5, 13)$ How many such lines are there?

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9. Draw the graph of the equation $3x - 4y = 12$. comment on:

(i) $x=0, y=3$ is a solution of the equation.

(ii) The abscissa i.e. the value of x can never be 100 units.

(iii) Sum of intercept (parts made by straight line on the axes) on the

axed is 7 units.

(iv) Length of line segment between the axes is 5 units

(v) Area of triangle formed by the line $3x-4y=12$ and co ordinate axes.

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10. solve the equation $2x-3=5x+6$ and represent the solution (s) on (i) the number line, (ii) the catesian plane.

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11. The equation of a straight line is $\frac{2x}{3} + \frac{y}{6} - 5 = 0$

(i) Express the above equation in the form $ax+b+c=0$ and hence find the ordinate of a point whose abscissa is $\frac{3}{2}$

(ii) Express y in terms of x given that $\frac{2x}{3} + \frac{y}{6} - 5 = 0$ check whether $(7,2)$ is a solution of given line .

(iii) Find the point where line $\frac{2x}{3} + \frac{y}{6} - 5 = 0$ cuts the y axis.

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12. Draw the straight lines $x-y+2=0$ and $3x-8y=12$ on the same graph paper

- (i) Find the point where the two lines meet each other.
- (ii) Find the area of triangle formed by these lines and x-axis.

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13. Use the graphical method to find the value of k if

(i) $(k,-3)$ lies on the straight line

$$2x + 3y = 1$$

(ii) $(5,k-2)$ lies on the straight line

$$x - 2y + 1 = 0$$

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1. If the point (3,4) lies on the graph of the equation $3y - ax - 7 = 0$ find the value of a

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2. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y , write a linear equation for this information, and draw

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3. From the choices given below, choose the equation whose graphs are given in Fig. 4.6 and Fig. 4.7. For Fig. 4.6 (i) $y = x$ (ii) $x + y = 0$ (iii) $y = 2x$ (iv) $2 + 3y = 7x$ For Fig. 4.7 (i) $y = x + 2$ (ii) $y = x - 2$ (iii) $y = -x + 2$ (iv) $x + 2$

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4. If the work done by a body on application of a constant force is directly proportional to the distance travelled by the body, express this in the form of an equation in two variables and draw the graph of the same by taking the constant force as 5 units.

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5. Yamini and Fatima, two students of Class IX of a school, together contributed Rs 100 towards the Prime Minister's Relief Fund to help the earthquake victims. Write a linear equation which satisfies this data. (You may take their contributions as Rs. x and Rs. y .) Draw the graph of the same.

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6. In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius.

Here is a linear equation that converts Fahrenheit to Celsius:

$$F = \left(\frac{9}{5}\right)C + 32$$

(i) Draw the graph of the linear equation.

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7. Draw the graphs of linear equations $y=x$ and $y=-x$ on the same cartesian plane. What do you observe ?

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Exercise

1. Draw the graph for each equation given below:

(i) $x=4$, (ii) $x-6=0$, (iii) $x+3=0$, (iv) $y=2$, (v) $2x-5=0$, (vi) $y+3=0$

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2. Draw the graph of each of the following given equations:

(i) $y=3x$, (ii) $x=2y$, (iii) $x+3y=0$, (iv) $2x+3y=0$

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3. Draw the graph of each of the following :

(i) $\frac{x}{3} + \frac{y}{5} = 1$, (ii) $\frac{2x + 6}{5} = y - 1$, (iii) $3x + 4y = 12$, (iv) $3x - y = 2$

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4. Draw the graph of :

(i) $x+2y=4$, (ii) $2x+4y=6$

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5. Draw the graph of the equations $x+y=3$, $2x-y=3$ and $x+2y=4$. Show that these three lines pass through the same point. Find the co-ordinates of this common point.

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6. Draw the graph of the straight line given by the equation $4x-3y+36=0$. Calculate the area of the triangle formed by the line drawn and the co-ordinate axes.

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7. Draw the graph of the equation $4x+3y+6=0$. From the graph find.

(i) value of y , when $x=12$

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1. Write the equation of x axis.

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2. Write the equation of y axis.

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3. Where will the point $(a,0)$ lie?

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4. Where will the point $(0,a)$ lie?

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5. On what point the graph of linear equation $3x+2y =9$ will intersect x-axis?



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6. The cost of a book is three times the cost of a note book , write it in equation form using two variables.

A. $x + 3y$

B. $x - 3y$

C. $x + 3y = 0$

D. $x = 3y$

Answer: D



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7. Show that (3,4) and (0,6) are the solutions of the equation $2x+3y=18$

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8. If the point (2,3) lies on the graph of the equation $ax+2y=10$, find the value of a

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9. Find two solutions of each of the following:

(i) $x+y=6$, (ii) $2x+3y=12$

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10. The graph of the linear equation $2x+17y=18$ is a line which meets the X-axis at the point.

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11. Draw the graph of $x+2y=5$. From the graph, find (i) x_1 the value of x when $y=-1$ (ii) y_1 the value of y when $x=-3$

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12. A straight line passes through the points $(2,4)$ and $(5,-2)$. Taking 1 cm=1 unit, mark these points on a graph paper and draw the straight line through these points. If points $(m,-4)$ and $(3,n)$ lie on the line drawn, find the values of m and n .

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