



MATHS

NCERT - NCERT MATHS (KANNADA ENGLISH)

LINEAR EQUATIONS IN TWO VARIABLES

Examples

1. Sachin and Sehwag scored 137 runs together. Express the information in the form of an equation.



2. Hema's age is 4 times the age of Mary. Write

a linear equation in two variables to represent

this information.

3. A number is 27 more than the number obtained by reversing its digits. If its unit's and ten's digits are x and y respectively, write the linear equation representing the above statement.

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4. Express each of the following equations in the form of ax + by + c = 0 and write the values of a, b and c.

(i) 3x + 4y = 5 (ii) $x - 5 = \sqrt{3}y$

(iii)
$$3x = y$$
 (iv) $\frac{x}{2} + \frac{y}{2} = \frac{1}{6}$
(v) $3x - 7 = 0$
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5. Write each of the following in the form of ax

+ by + c = 0 and find the values of a, b and c

- (i) x = -5
- (ii) y = 2
- (iii) 2x = 3

(iv) 5y = -3

6. Find four different solutions of 4x + y = 9.

(Complete the table wherever necessary)

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7. Check which of the following are solutions of an equation x + 2y = 4? (Complete the table wherever necessary) (i) (0, 2) (ii) (2, 0) (iii) (4, 0) (iv) $(\sqrt{2}, \sqrt{2})$

(v) (1, 1) (vi) (- 2, 3)

8. If x = 3, y = 2 is a solution of the equation 5x - 7y = k, find the value of k and write the resultant equation.

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9. If x = 2k + 1 and y = k is a solutions of the

equation 5x + 3y - 7 = 0, find the value of k.

10. Draw the graph of the equation y - 2x = 4 and then answer the following.

(i) Does the point (2, 8) lie on the line? Is (2, 8)

a solution of the equation? Check by substituting (2, 8) in the equation.

(ii) Does the point (4, 2) lie on the line? Is (4, 2)

a solution of the equation? Check algebraically also.

(iii) From the graph find three more solutions of the equation and also three more which are not solutions.



11. Draw the graph of the equation x - 2y = 3. From the graph find (i) The solution (x, y) where x = -5

(ii) The solution (x, y) where y = 0

(iii) The solution (x, y) where x = 0

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12. For each graph given below, four linear equations are given. Out of these find the

equation that represents the given graph.

- (i) Equations are
- (A) y = x
- (B) x + y = 0
- (C) y = 2x
- (D) 2 + 3y = 7x
- (ii) Equations are
- (A) y = x + 2
- (B) y = x 2

(C) y = -x + 2

(D) x + 2y = 6



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Try This

1. Express the following linear equations in the form of ax + by + c = 0 and indicate the values of a, b, c in each case? (i) 3x + 2y = 9 (ii) -2x + 3y = 6 (iii) 9x - 5y = 10(iv) $\frac{x}{2} - \frac{y}{2} - 5 = 0$ (v) 2x = yWatch Video Solution

Do This

1. (i) Draw the graph of following equations.
(a) x = 2 (b) x = -2 (c) x = 4 (d) x = -4
(ii) Are the graphs of all these equations parallel to Y-axis?
(iii) Find the distance between the graph and the Y-axis in each case



2. (i) Draw the graph of the following equations
(a) y = 2 (b) y = -2 (c) y = 3 (d) y = -3
(ii) Are all these parallel to the X-axis?

(iii) Find the distance between the graph of

the line and the X-axis in each case

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Exercise 81

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

(i) 8x + 5y - 3 = 0 (ii) 28x - 35y = - 7 (iii) 93x = 12 -

15y

(iv) 2x = - 5y (v)
$$rac{x}{3}+rac{y}{4}=7$$
 (vi) $y=rac{-3}{2}x$ (vii) 3x+5y=12

2. Write each of the following in the form of ax

+ by + c = 0 and find the values of a, b and c

(i) 2x = 5 (ii) y - 2 = 0 (iii)
$$rac{y}{7} = 3$$
 (iv) x= $rac{-14}{13}$



3. Express the following statements as a linear

equation in two variables.

The sum of two numbers is 34.

4. Express the following statements as a linear

equation in two variables.

The cost of a ball pen is 5 less than half the

cost of a fountain pen.



5. Express the following statements as a linear

equation in two variables.

Bhargavi got 10 more marks than double the

marks of Sindhu.



6. Express the following statements as a linear equation in two variables.

The cost of a pencil is 2 and a ball point pen is

15. Sheela pays 100 for the pencils and pens

she purchased.

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7. Express the following statements as a linear

equation in two variables.

Yamini and Fatima of class IX together contributed ` 200/- towards the Prime Minister's Relief Fund.

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8. Express the following statements as a linear equation in two variables.

The sum of a two digit number and the number obtained by reversing the order of its digits is 121. If the digits in unit's and ten's place are 'x' and 'y' respectively.





Exercise 8 2

1. Find three different solutions of the each of the following equations.

(i) 3x + 4y = 7 (ii) y = 6x (iii) 2x - y = 7

(iv) 13x - 12y = 25 (v) 10x + 11y = 21 (vi) x + y = 0

2. If (0, a) and (b, 0) are the solutions of the following linear equations. Find 'a' and 'b'. (i)8x - y = 34 (ii) 3x = 7y - 21 (iii)5x - 2y + 3 = 0



3. Check which of the following is solution of
the equation
$$2x - 5y = 10$$

(i) (0, 2) (ii) (0, -2) (iii) (5, 0) (iv) $(2\sqrt{3}, -\sqrt{3})$
(v) $(\frac{1}{2}, 2)$

4. Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3y = k.

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5. If $x = 2 - \alpha$ and $y = 2 + \alpha$ is a solution of the equation 3x - 2y + 6 = 0 find the value of ' α '. Find three more solutions of the resultant equation.

6. If x = 1, y = 1 is a solution of the equation 3x + 3x = 1

ay = 6, find the value of 'a'.

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7. Write five different linear equations in two variables and find three solutions for each of them?

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Exercise 83

1. Draw the graph of each of the following linear equations.

(i) 2y = -x + 1 (ii) -x + y = 6 (iii) 3x + 5y = 15 (iv)





2. Draw the graph of each of the following linear equations and answer the following question.

(i) y = x (ii) y = 2x (iii) y = -2x (iv) y = 3x v) y = -3x

(i) Are all these equations of the form y = mx,

where m is a real number?

(ii) Are all these graphs passing through the origin?

(iii) What can you conclude about these graphs?

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3. Draw the graph of the equation 2x + 3y = 11.

Find the value of y when x = 1 from the graph.

4. Draw the graph of the equation y - x = 2.
Find from the graph
(i) the value of y when x = 4

(ii) the value of x when y =-3

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5. Draw the graph of the equation 2x+3y=12.

Find the solutions from the graph

(i) Whose y-coordinate is 3

(ii) Whose x-coordinate is -3



6. Draw the graph of each of the equations given below and also find the coordinates of the points where the graph cuts the coordinate axes

(i) 6x - 3y = 12 (ii) -x + 4y = 8 (iii) 3x + 2y + 6 = 0

7. Rajiya and Preethi two students of Class IX together collected 1000 for the Prime Minister Relief Fund for victims of natural calamities. Write a linear equation and draw a graph to depict the statement.

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8. Gopaiah sowed wheat and paddy in two fields of total area 5000 square meters. Write

a linear equation and draw a graph to

represent the same?



9. The force applied on a body of mass 6 kg. is directly proportional to the acceleration produced in the body. Write an equation to express this observation and draw the graph of the equation.



10. A stone is falling from a mountain. The velocity of the stone is given by V = 9.8t. Draw its graph and find the velocity of the stone '4' seconds after start.

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1. When Rupa was born, her father was 25 years old. Form an equation and draw a graph for this data. From the graph find

(i) The age of the father when Rupa is 25 years

old.

(ii) Rupa's age when her father is 40 years old.

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2. An auto charges 15 for first kilometer and 8 each for each subsequent kilometer. For a distance of 'x' km. an amount of 'y' is paid. Write the linear equation representing this information and draw the graph. With the help of graph find the distance travelled if the fare paid is 55? How much would have to be

paid for 7 kilometers?



3. Sameera was driving a car with uniform speed of 60 kmph. Draw distance-time graph. From the graph find the distance travelled by Sameera in

(i)
$$(1)rac{1}{2}$$
 hours (ii) 2 hours (iii) $(3)rac{1}{2}$ hours

$$F = igg(rac{9}{5}igg)C + 32.$$

Draw the graph of the linear equation above using celsius for x-axis and fahrenheit for yaxis.

$$F = \left(rac{9}{5}
ight)C + 32.$$

If the temperature is 30° C, what is the tempetature in fahrenheit?

$$F = \left(rac{9}{5}
ight)C + 32.$$

If the temperature is $95^{\circ}F$, what is the temperature in celsius.

$$F = \left(rac{9}{5}
ight)C + 32.$$

Is there a temperature which is numerically the same in both Fahrenheit and celsius? If yes, find it.

1. Give the graphical representation of the following equation.

(a) On the number line and (b)On the Cartesian plane

(i)
$$x = 3$$
 (ii) $y + 3 = 0$ (iii) $y = 4$ (iv) $2x - 9 = 0$

(v) 3x + 5 = 0

2. Give the graphical representation of 2x - 11=

0 as an equation in

(i) one variable (ii) two variables

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3. Solve the equation 3x + 2 = 8x - 8 and

represent the solution on

(i) the number line (ii) the Cartesian plane

4. Write the equation of the line parallel to X-

axis, and passing through the point

(i) (0, -3) (ii) (0, 4) (iii) (2, -5) (iv) (3,4)

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5. Write the equation of the line parallel to Y-

axis and passing through the point

(i) (-4, 0) (ii) (2, 0) (iii) (3, 5) (iv) (-4,-3)

6. Write the equation of three lines that are

(i) parallel to the X-axis (ii) parallel to the Y-

axis