MATHS

BOOKS - SWAN PUBLICATION

LINEAR EQUATIONS IN TWO VARIABLES

Exercise 4 1

1. The cost of a notebook is twice the cost of a pen. Write a linear equation in two variables

to represent this statement.

(Take the cost of a notebook to be Rs. X and that of a pen be Rs. Y).

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

$$2x + 3y = 9.3\overline{5}$$

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

$$x - \frac{y}{5} - 10 = 0$$

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

$$-2x + 3y = 6$$

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

x=3y

6. Express the following linear equations in the form $ax + by + c = 0$ and indicate the values

of a, b and c in each case :

$$2x = -5y$$

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

$$3x + 2 = 0$$

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

$y - 2 = 0$

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

5=2x

Exercise 4 2

1. Which one of the following option is true and why ? $y = 3x + 5$ has

2. Write four solutions for each of the following equations :

$$2x + y = 7$$

3. Write four solutions for each of the following equations :

$$x\pi + y = 9$$

4. Write four solutions for each of the following equations :

$$x = 4y$$

5. Check which of the following are solutions of the equation $x - 2y = 4$ and which are not: $(0, 2)$

6. Check which of the following are solutions of the equation $x - 2y = 4$ and which are not: $(2, 0)$

7. Check which of the following are solutions of the equation $x - 2y = 4$ and which are not: $(4, 0)$

8. Check which of the following are solutions of the equatio $x - 2y = 4$ and which are not :

$$\left(\sqrt{2}, 4\sqrt{2}\right)$$

9. Check which of the following are solutions of the equation $x - 2y = 4$ and which are not: (1, 1)

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

1. Draw the graph of each of the following linear equations in two variables :

$x + y = 4$

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2. Draw the graph of each of the following linear equations in two variables: $x - y = 2$

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3. Draw the graph of each of the following linear equations in two variables: $y = 3x$

4. Draw the graph of each of the following linear equations in two variables: $3 = 2x + y$

5. Give the equations of two lines passing through (2, 14). How many more such lines are there, and why?

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

7. 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 kilometre. Taking the distance covered as x km and total fare as Rs.y, write a linear equation for this information and draw its graph.

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8. From the choices given below, choose the equation whose graphs are given in Fig. (i) and
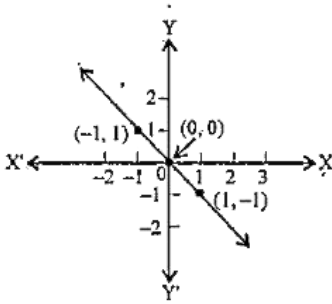
Fig. (ii)

Fig. (i)

For Fig. (i)

(i) $y = x$
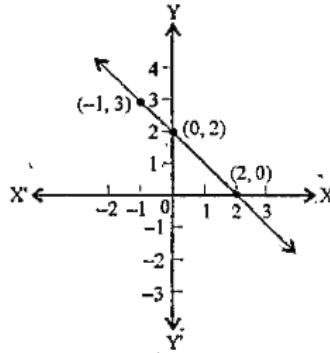
(ii) $x + y = 0$

(iii) $y = 2x$

(iv) $2 + 3y = 7x$

Fig. (ii)

For Fig. (ii)

(i) $y = x + 2$

(ii) $y = x - 2$

(iii) $y = -x + 2$

(iv) $x + 2y = 6$

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9. 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. Also read from the graph the work done when the distance travelled by the body is :-2 units

10. Yamini and Fatima, two students of Class IX of a school, together contributed Rs. 200 towards the Prime Minister's Relief Found to help the earthqake victims. Write a linear

equation which satisfies this data. (You may take their contributions as Rs. X and Rs. y.)

Draw the graphs of the same.

11. 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: $F = \left(\dfrac{9}{5}\right) C + 32$ Draw the graph of the

linear equation above using Celsius for x-axis and Fahrenheit for y-axis.

12. 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 Calsius :

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

If the temperature is $40°C$, what is the temperature in Fahrenhcit ?

13. 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 Calsius :

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

If the temperature is $90°F$, what is the temperature in Celsius ?

14. 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: $F = \left(\dfrac{9}{5}\right)C + 32$ If the temperature is $0°C$, what is the temperature in Fahrenheit and if

the temperature is $0° F$, what is the temperature in Celsius?

15. 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: $F = \left(\dfrac{9}{5}\right)C + 32$ Is there a temperature

which is numerically the same in both Fahrenheit and Celsius? If yes, find it.

Exercise 4 4

1. Give the geometric representations of $y = 1$ as an equation in one variable

2. Give the geometric representations of $y = 2$ as an equation in two variables

3. Give the geometric representations of $2x + 8 = 0$ as an equation in one variable

4. Give the geometric representation of $2x + 9 = 0$ as an equation in two variable.

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Objective Type Questions Answer The Following Questions

1. 5 pens and 6 pencils together cost Rs. 9.00 Write a linear equation in two variables to represent this statement.

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2. Write the following linear equations in the form $ax + by + c = 0$ and find the values of a,b and c in each case.

$$2x - y = -10$$

3. Write the following linear equations in the form $ax + by + c = 0$ and find the values of

a,b and c in each case.

$$4y = 5 + 3x$$

4. Write the following linear equations in the form $ax + by + c = 0$ and find the values of a,b and c in each case.

$$-x = 3 - 2y$$

5. Write each of the following equations in two variables

$$3x = 23$$

6. Write each of the following equations in two variables

$$4y = 24$$

7. How many solutions can be possible in a linear equation in two variables ?

8. Find two solutions of $2x - y = -1$

9. Find the value of k if $x = 1, y = 3$ is a solution of the equation $x - ky + 5 = 0$

Objective Type Questions Fill In The Blanks

1. The graph of every linear equation on two variables is a . . . .

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2. The equation of y-axis is :

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3. $y = 0$ is the equation of the . . . .

4. The graph of $x = a$ is a straight line parallel

to the . . . .

5. The graph of $y = a$ is a straight line parallel

to the . . . .

6. An equation of the type $y = mx$ represents

a line passing through the . . . .