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MATHS

BOOKS - PSEB

LINEAR EQUATIONS IN TWO VARIABLES

Exercise

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

to represent this statement.

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

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

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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: $-4x + 7y = 6$

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

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6. Express the following linear equation in the form ax + by + c = 0 and indicate the values of a, b and c in each case. $2x = -5y$.

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7. Express the following linear equation in the form ax + by + c = 0 and indicate the values of a, b and c in each case. $3x + 2 = 0$.

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

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9. Express the following linear equation in the form ax + by + c = 0 and indicate the values of a, b and c in each case. $5 = 2x$.

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

A. a unique solution,

B. only two solutions,

C. infinitely many solutions

D.

Answer:

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11. Write four solutions for the following equation : $2x + y = 7$.

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12. Write four solutions for each of the following equations: $4x + y = 9$

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13. Write four solutions for each of the following equations: $x = 4y$

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

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

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

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17. Check the following is solution of the equation $x - 2y = 4$ or not. $(\sqrt{2}, 4\sqrt{2})$

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

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

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

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

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

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

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

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

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26. 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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27. From the choices given below, choose the equation whose graphs are given :-For Fig. 4. 6

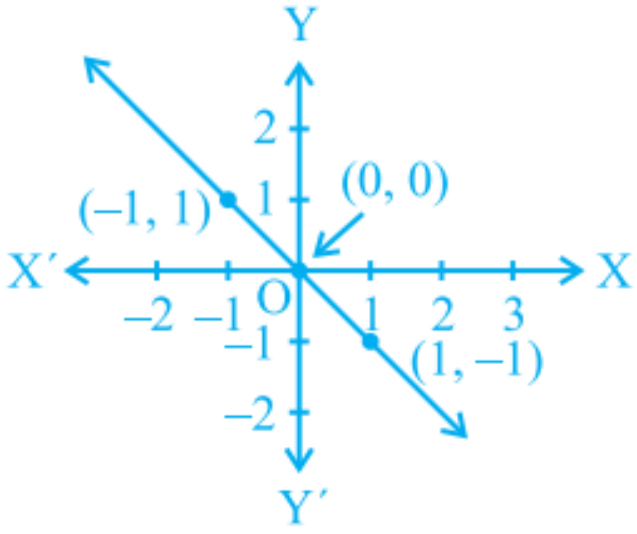

Fig. 4.6

A. $y = x$

B. $x + y = 0$

C. $y = 2x$

D. $2 + 3y = 7x$

Answer:

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28. From the choices given below, choose the equation whose graphs are given in figure.

A. $y = x + 2$

B. $y = x - 2$

C. $y = -x + 2$

D. $x + 2y = 6$

Answer:

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29. 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

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30. 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 6 units. Also read from the graph the work done when the distance travelled by the body is:- 0 unit

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31. Yamini and Fatima, two students of Class IX of a school, together contributed ₹ 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 ₹ x and ₹ y.) Draw the graph of the same.

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32. 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: $F = \left(\frac{9}{5}\right)C + 32$ Draw the graph of the linear equation above using Celsius for x-axis and Fahrenheit for y-axis.

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33. The function 't' which maps temperature in degree Celsius into temperature in degree Fahrenheit is defined by $t(C) = \frac{9C}{5} + 32$ .Find:- t(-10)

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34. 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: $F = \left(\frac{9}{5}\right)C + 32$ If the temperature is $95^\circ F$, what is the temperature in Celsius?

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35. 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: $F = \left(\frac{9}{5}\right)C + 32$ If the temperature is $0^\circ C$,

what is the temperature in Fahrenheit and if the temperature is $0^\circ F$, what is the temperature in Celsius?

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

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

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37. Give the geometric representation of y = 3 as an equation in one variable.

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38. Give the geometric representation of y = 3 as an equation in one variable.

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

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

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Example

1. Write the following equations in the form ax + by + c = 0 and indicate the values of a, b and c in each case: $2x + 3y = 4.37$

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2. Write the following equations in the form ax + by + c = 0 and indicate the values of a, b and c in each case: $x - 4 = \sqrt{3}y$

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3. Write the following equations in the form ax + by + c = 0 and indicate the values of a, b and c in each case: $4 = 5x - 3y$

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

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5. Write the following as an equation in two variables: $x = -5$

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6. Write the following as an equation in two variables: $y = 2$

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7. Write the following as an equation in two variables: $2x = 3$

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8. Write the following as an equation in two variables: $5y = 2$

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9. Find four different solutions of the equation

x + 2y = 6.

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10. Find two solutions for the following equations: $4x + 3y = 12$

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11. Find two solutions for the following equations: $2x + 5y = 0$

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12. Find two solutions for the following equation : 3y + 4 = 0.

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13. Given the point (1, 2), find the equation of a line on which it lies. How many such equations are there?

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14. Draw the graph of $x + y = 7$.

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15. You know that the force applied on a body is directly proportional to the acceleration produced in the body. Write an equation to express this situation and plot the graph of the equation.

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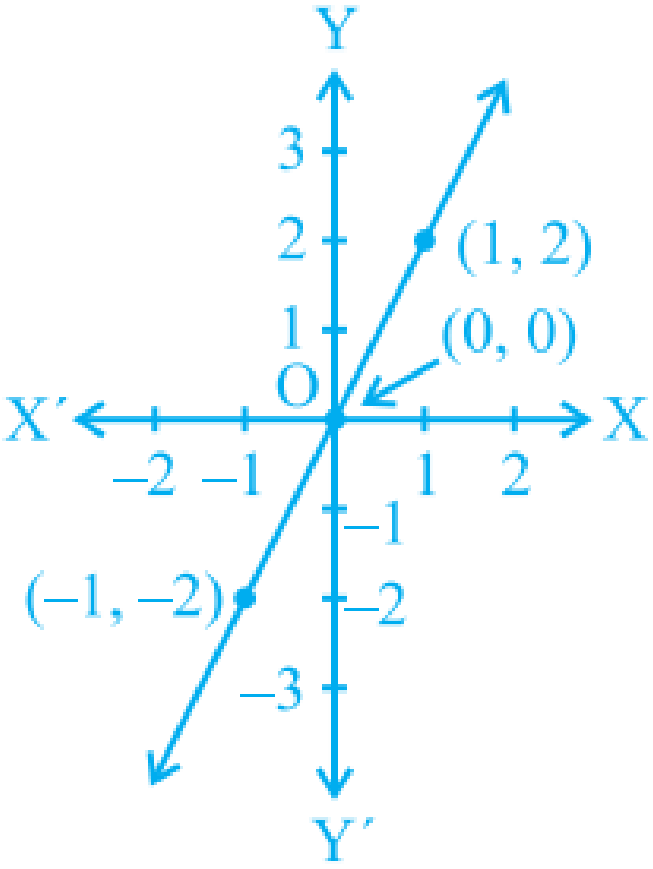
16. For Fig. 4.5 (i), select the equation whose graph it is from the choices given below:



(i)

A. $x + y = 0$

B. $y = 2x$

C. $y = x$

D. $y = 2x + 1$

Answer:

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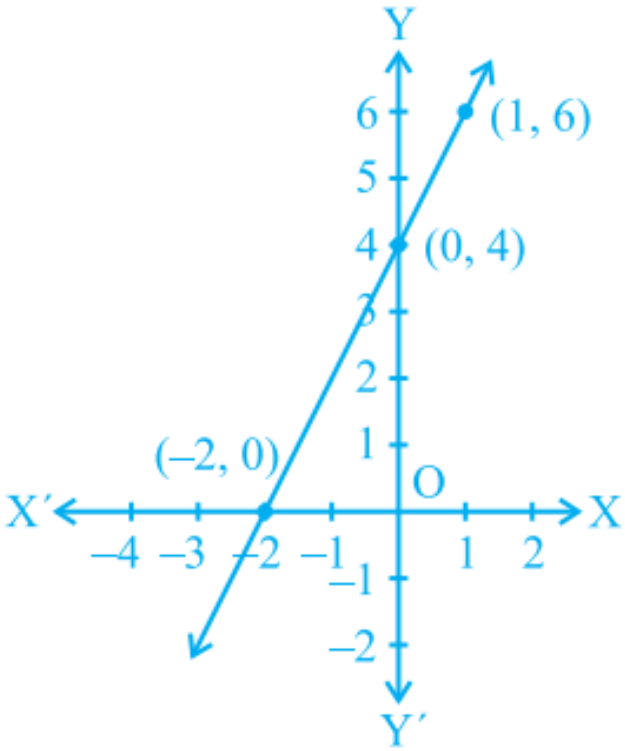
17. For Fig. 4.5 (ii),select the equation whose graph it is from the choices given below:



(ii)

A. $x + y = 0$

B. $y = 2x$

C. $y = 2x + 4$

D. $y = x - 4$

Answer:

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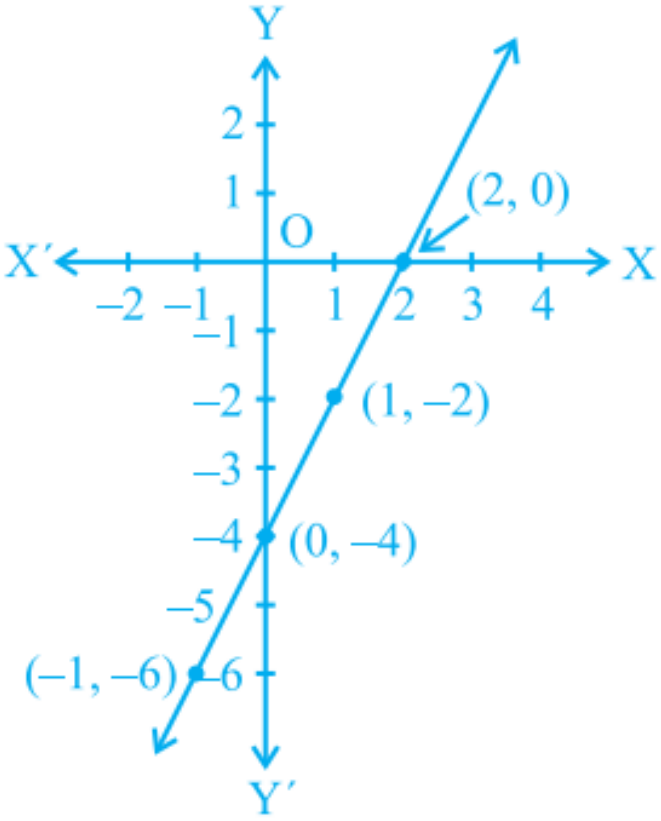
18. For Fig. 4.5 (iii), select the equation whose graph it is from the choices given below:



(iii)

A. $x + y = 0$

B. $y = 2x$

C. $y = 2x + 1$

D. $y = 2x - 4$

Answer:

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19. Solve the equation 2x + 1 = x - 3, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

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