

CLASS X: PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Q1: How many solutions does the pair of equations $y = 0$ and $y = -5$ have? (2013)

Q2: If $ax + by = a^2 - b^2$ and $bx + ay = 0$, find the value of $(x + y)$. (2013)

Q3: For what value of k , the pair of equations $4x - 3y = 9$, $2x + ky = 11$ has no solution? (2017D)

Q4: Calculate the area bounded by the line $x + y = 10$ and both the co-ordinate axes. (2012)

Q5: Find whether the following pair of linear equations is consistent or inconsistent: (2015)

$$3x + 2y = 8, 6x - 4y = 9$$

Q6: Check graphically whether the pair of equations $3x - 2y + 2 = 0$ and $3/2x - y + 3 = 0$, is consistent. Also find the coordinates of the points where the graphs of the equations meet the Y-axis.

Q7. Draw the graph of

$2y = 4x - 6$; $2x = y + 3$ and determine whether this system of linear equations has a unique solution or not.

Q8. Represent the following pair of equations graphically and write the coordinates of points where the lines intersect y-axis.

Q9: Solve the following pair of equations for x and y : (2012)

$$a^2/x - b^2/y = 0; a^2b/x + b^2a/y = a + b, x \neq 0; y \neq 0$$

Q10: Solve for x and y :

$$10/(x+y) + 2/(x-y) = 4; 15/(x+y) - 5/(x-y) = -2$$

$$x + y \neq 0$$

$$x - y \neq 0 \text{ (2012, 2017D)}$$

Q11: Solve the following pair of linear equations for x and y :

$$141x + 93y = 189;$$

$$93x + 141y = 45 \text{ (2013)}$$

Q12: Solve the following pair of linear equations for x and y : (2013)

$$(b/a)x + (a/b)y = a^2 + b^2; x + y = 2ab$$

Q13: Solve by elimination: (2014)

$$3x = y + 5$$

$$5x - y = 11$$

Q14: Solve by elimination: 2015

$$3x - y = 7$$

$$2x + 5y + 1 = 0$$

Q15: Solve for x and y : (2017OD)

$$27x + 31y = 85;$$

$$31x + 27y = 89$$

Q16: Solve for x and y : $x/a = y/b$;

$$ax + by = a^2 + b^2 \text{ (2017D)}$$

Q17: Solve: $x/a + y/b = a + b$; $x/a^2 + y/b^2 = 2$, $a, b \neq 0$ (2017OD)

Q18: A man earns Rs. 600 per month more than his wife. One-tenth of the man's salary and $1/6^{\text{th}}$ of the wife's salary amount to Rs.1,500, which is saved every month. Find their incomes. (2014)

Q19: The sum of the digits of a two digit number is 8 and the difference between the number and that formed by reversing the digits is 18. Find the number. (2015)

Q20: The age of the father is twice the sum of the ages of his 2 children. After 20 years, his age will be equal to the sum of the ages of his children. Find the age of the father. (2012)

Q21. A two digit number is seven times the sum of its digits. The number formed by reversing the digits is 18 less than the given number. Find the given number. (2013)

Q 22. Sita Devi wants to make a rectangular pond on the road side for the purpose of providing drinking water for street animals. The area of the pond will be decreased by 3 square feet if its length is decreased by 2 ft. and breadth is increased by 1 ft. Its area will be increased by 4 square feet if the length is increased by 1 ft. and breadth remains same. Find the dimensions of the pond. (2014)

Q23. On reversing the digits of a two digit number, number obtained is 9 less than three times the original number. If difference of these two numbers is 45, find the original number. (2014)

Q24. Speed of a boat in still water is 15 km/h. It goes 30 km upstream and returns back at the same point in 4 hours 30 minutes. Find the speed of the stream. 2017D

Q25. The owner of a taxi company decides to run all the taxis on CNG fuel instead of petrol/diesel. The taxi charges in city comprises of fixed charges together with the charge for the distance covered. For a journey of 12 km, the charge paid is 789 and for journey of 20 km, the charge paid is Rs.145. What will a person have to pay for travelling a distance of 30 km? (2014)

Q26. A boat takes 4 hours to go 44 km downstream and it can go 20 km upstream in the same time. Find the speed of the stream and that of the boat in still water. (2015)

Q27. A man travels 300 km partly by train and partly by car. He takes 4 hours if he travels 60 km by train and the rest by car. If he travels 100 km by train and the remaining by car, he takes 10 minutes longer. Find the speeds of the train and the car separately. (2017D)

Q28. The owner of a taxi company decides to run all the taxis on CNG fuel instead of petrol/diesel. The taxi charges in city comprises of fixed charges together with the charge for the distance covered. For a journey of 13 km, the charge paid is ₹129 and for a journey of 22 km, the charge paid is ₹210. What will a person have to pay for travelling a distance of 32 km? (2014)

Q29. Solve the following pair of linear equations graphically:

$$x + 3y = 6 ; 2x - 3y = 12$$

Also find the area of the triangle formed by the lines representing the given equations with y-axis. (2012,

2015)

Q30. Draw the graphs of following equations:

$$2x - y = 1; x + 2y = 13$$

Find the solution of the equations from the graph and shade the triangular region formed by the lines and the y-axis. (2013)

Q31. Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and x-axis. (2012, 2017D)

Question 32. Amit bought two pencils and three chocolates for Rs. 11 and Sumeet bought one pencil and two chocolates for Rs.7. Represent this situation in the form of a pair of linear equations. Find the price of one pencil and that of one chocolate graphically. (2017OD)

Question 33.

$7x - 5y - 4 = 0$ is given. Write another linear equation, so that the lines represented by the pair are:

- (i) intersecting**
- (ii) coincident**
- (iii) parallel (2015 OD)**