

PAIR OF LINEAR EQUATIONS IN TWO VARIABLES(CLASS X)

ASSIGNMENT

Q1) Find the value of k for which the system of equations $2x+3y=7$ and $8x+(k+4)y-28=0$ has infinitely many solutions.

Q2) Find the coordinate where the line $x-y=8$ will intersect y-axis.

Q3) Write a pair of linear equations formed by the lines representing which has the unique solution $x=-1$ and $y=3$. How many such pairs are there?

Q4) Find values of a and b for which the following system of equations has infinitely many solutions?

$$3x+4y=12$$

$$(a+b)x+2(a-b)y=5a-1$$

Q5) Solve for x and y $\frac{2xy}{x+y} = \frac{3}{2}$, $\frac{xy}{2x-y} = -\frac{3}{10}$, $x+y \neq 0, 2x-y \neq 0$

QUESTIONS RELATED TO GRAPH

Q6) Solve the following system of linear equations graphically

$$3x+y-11=0, x-y-1=0$$

a) shade the region bounded by these lines and y-axis.

b) Find area of the region bounded by these lines and the y-axis.

c) Determine vertices of the triangle formed by the lines representing the above equations and the y-axis.

Q7) Determine graphically the vertices of the triangle, the equation of whose sides are given below

$$2y-x=8, 5y-x=14 \text{ and } y-2x=1$$

Q8) Draw the graph of the following pair of linear equations

$$X+3y=6, 2x-3y=12$$

Find the area of region bounded by $x=0, y=0$ and $2x-3y=12$

Q9) Solve the following system of linear equations graphically

$$3x+y-12=0, x-3y+6=0$$

- a) Shade the region bounded by these lines and x-axis.
- b) Find area of triangle formed by these lines and x-axis.
- c) Find area of triangle formed by these lines and y axis.
- d) Find ratio of areas found in b) and c).

WORD PROBLEMS

Q10) At a certain time in a deer park, the number of heads and the number of legs of deer and human visitors were counted and it was found there were 39 heads & 132 legs.

Find the number of deer and human visitors in the park.

Q11) . A chemist has one solution which is 50% acid and a second which is 25% acid. How much of each should be mixed to make 10 litres of 40% acid solution. (HOTS)

Q12) The population of the village is 5000. If in a year, the number of males were to increase by 5% and that of a female by 3% annually, the population would grow to 5202 at the end of the year. Find the number of males and females in the village.(HOTS)

Q13) . A train covered a certain distance at a uniform speed. If the train would have been 6km/hr faster, it would have taken 4hours less than the scheduled time. And if the train were slower by 6km/hr, it would have taken 6 hours more than the scheduled time. Find the distance of the journey. (HOTS)

Q14) In an election contested between A and B, A obtained votes equal to twice the no. of persons on the electoral roll who did not cast their votes & this later number was equal to twice his majority over B. If there were 18000 persons on the electoral roll. How many voted for B.

Q15)A person invested some amount at the rate of 12% simple interest and some other amount at the rate of 10% simple interest. He received yearly interest of ₹130. But if he had interchanged amount invested, he would have received ₹4 more as interest. How much did he invest at different rates?

Q16) Some people collected money to be donated in some orphanages. A part of the donation is fixed and remaining depends on the number of children in orphanage. If they donated ₹9500 in the orphanage having 50 children and ₹13250 with 75 children, find the fixed part of donation and the amount donated for each child. Do you think these people are working for a good cause. How? (VALUE BASED QUESTION)

Q17) On selling a T.V at 5% gain and a fridge at 10% gain, a shopkeeper gains ₹2000. But if he sells the T.V at 10% gain and fridge at 5% loss, he gains ₹1500 on the transaction. Find actual price of the T.V and the fridge. (HOTS)

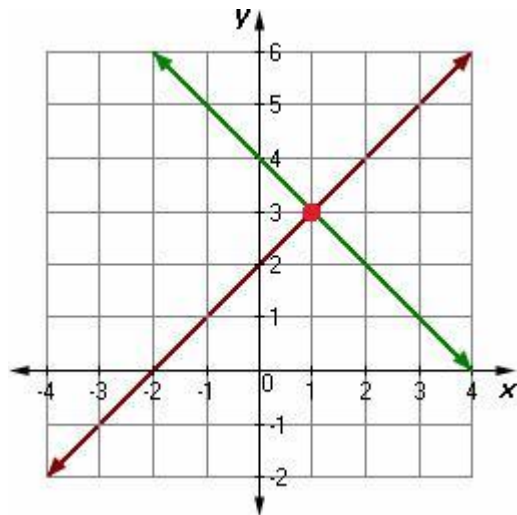
Q18) The ratio of incomes of two persons is 9:7 and the ratio of their expenses is 4:3. If each of them manages to save ₹2000 per month, find their monthly income.

Q19) If $x+1$ is a factor of $2x^3+ax^2+2bx+1$, then find the values of a and b given $2a-3b=4$

Q20) 8 men and 12 boys can finish a piece of work in 10 days while 6 men and 8 boys can finish it in 14 days. Find the time taken by one man and that by one boy alone to finish the work.

Q21) A boat covers 25 km upstream and 44 km downstream in 9 hours. Also, it covers 15 km upstream and 22 km downstream in 5 hours. Find the speed of boat in still water and that of the stream.

COMPREHENSION



Niharika and Geeta drew two lines on the graph paper as shown. Study the graph and answer the questions.

- Equation of line plotted by Niharika.
- Equation of line plotted by Geeta.
- Coordinates of point of intersection of two lines.
- Area of triangle made between two lines and x-axis.
- Nature of solution the two lines have.

