

SIMULTANEOUS LINEAR EQUATION IN TWO VARIABLES

1. Solve the following system of equations:
 - i. $11x - 8y = 27$
 - ii. $3x + 5y = -7$
2. Solve:
 - i. $3x - 2y = 19$
 - ii. $4x + y = 18$
3. Solve:
 - i. $3x - 5y = 14$
 - ii. $2x - 7y = 2$
4. Solve:
 - i. $\frac{7+x}{5} - \frac{2x-y}{4} = 3y - 5$
 - ii. $\frac{5y-7}{2} - \frac{4x-3}{6} = 18 - 5x$
5. Solve algebraically:
 - i. $\frac{2}{x} + \frac{2}{3y} = \frac{1}{6}$
 - ii. $\frac{3}{x} + \frac{2}{y} = 0$
6. Solve: $\frac{1}{2(2x+3y)} + \frac{12}{7(3x-2y)} = \frac{1}{2}$, $\frac{7}{2x+3y} + \frac{4}{3x-2y} = 2$, where $2x + 3y \neq 0$ and $3x - 2y \neq 0$.
7. Solve for x and y: $47x + 31y = 63$, $31x + 47y = 15$
8. Solve: $\frac{xy}{x+y} = \frac{6}{5}$, $\frac{7+x}{5} - \frac{xy}{y-x} = 6$ where $x + y \neq 0$ and $y - x \neq 0$
9. Solve: $\frac{5}{x+y} - \frac{2}{x-y} = -1$, $\frac{15}{x+y} + \frac{7}{x-y} = 10$
10. Can the following system of equations hold simultaneously?

$$3x + 2y = 11, 2x + 3y = 4, 4x - 3y = 26.$$
11. Solve the following pair of equation by the method of cross multiplication.
 - i. $2x + 3y = 9$
 - ii. $3x + 4y = 5$

Word Problems involving simultaneous equations.

Numbers:-

1. Three times a number increase by five times another number is 49, but twice the second number exceeds five times the first number by 1. What are the numbers?
2. The sum of the digits of a certain two digit number is 13 and the number is 2 more than 7 times the unit's digit. Find the number.
3. The sum of the digits in a two-digits number is 10. If 18 is subtracted from the number, the result is the number with the digits reversed. Find the number.

Fractions :-

4. The denominator of a fraction is greater than its numerator by 11. If 8 is added to both is numerator and denominator, it becomes $\frac{3}{4}$. Determine the fraction.

Age:-

5. Six years ago, Ramesh was three times as old as Anil. Four years from now, Ramesh will be only twice as old as Anil will be. Find the present age of each person.

Geometrical:-

6. The largest angle of a triangle is twice the sum of the other two. The smallest is one-fourth of the largest. Determine all the angles in degrees.

Boats and streams:-

7. A boat goes 30km upstream and 44 km downstream in 10hours. In 13 hours it can go 40km upstream and 55 km downstream, Determine the speed of the stream and that of the boat in still water.

Time and distance:-

8. Two brothers start at the same time from two places 20km apart. If they walk in the same direction, the elder brother overtakes the younger in 10 hours but if they walk in opposite directions, they meet in 2 hours. Find the rates at which they walk.
9. A man travels 370 km partly by train and partly by car. If he covers 250 km by train and the rest by car, it takes him 4 hours. But, if he travels 130 km by train and the rest by car, he takes 18 minutes longer. Find the speed of the train and that of the car.
10. A lady has only 25 paise and 50 paise coins in her purse. If in all, she has 40coins worth Rs.12.75, how many of each type does she have?

PERL Education

11. A labourer was engaged for 30 days on the condition that he will be paid Rs.2.50 every day he works and will be fined Rs.1 for every day he is absent. He earned Rs.47 in all. Find how many days did he work?
12. The cost of 3 coffee tins and 2 tea packets is Rs.23.00 and that of one coffee tin and four tea packets of the same type is Rs.21.00. Find the cost of each.
13. A man buys 4 horses and 9 cows for Rs.1340. If he sells the horses at 10% profit and the cows at 20% profit, he earns a total profit of Rs.188. Find how much did he pay for the horses.
14. A part of monthly hostel charges in a college is fixed and the remaining depends on the number of day. One has taken food in the mess. When a student Esha takes food for 20 days, she has to pay Rs.1000 as hostel charge, whereas a student Nisha who takes food for 28 days pays RS/1240 as hostel charges. Find the fixed charge and cost of food per day.