

# GROUP OF TUTORS

(Truly Important Series part 3)

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## Liner Equations in Two Variables

1. *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. (2017)*
2. *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)*
3. *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)*
4. *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)*
5. *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 feet and breadth remains same. Find the dimensions of the pond. (2014)*
6. *The owner of a taxi company decides to run all the taxi on CNG fuel instead of petrol/diesel. The taxi charges in city comprise of fixed charges together with the charge*

*for distance covered. For a journey of 12 km, the charges paid is Rs. 89 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)*

7. 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)
8. A man travels 300 km partly by train and partly by car. He takes 4 hours if he travels 60 km by train and rest by the car. If he travels 100 km by train and remaining by car, he takes 10 minutes longer. Find the speed of the train and the car separately. (2017)
9. *The owner of a taxi company decides to run all the taxi on CNG fuel instead of petrol/diesel. The taxi charges in city comprise of fixed charges together with the charge for distance covered. For a journey of 13 km, the charges paid is Rs. 129 and for journey of 22 km, the charge paid is Rs. 210. What will a person have to pay for travelling a distance of 32 km? (2014)*
10. *Solve the following pair of linear equations graphically:*

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

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

11. *Draw the graph of equations  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$ . Determine the co-ordinates of the vertices of the triangle formed by these lines and x-axis. (2012, 2017)*
12. *Saswat bought two pencils and three chocolates for Rs. 11 and Shreyas 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. (2017)*

13.  $7x - 5y - 4 = 0$  is given. Write another linear equation, so that the lines represented by the pair are-
- i) Intersecting
  - ii) Co-incident
  - iii) Parallel. (2015)
14. Shreya travels 14 km to her home partly by rickshaw and partly by bus. She takes half an hour, if she travels 2 km by rickshaw and the remaining distance by bus. On the other hand, if she travels 4 km by rickshaw and the remaining distance by bus, she takes 9 minutes longer. Find the speed of the rickshaw and of the bus. (NCERT Exemplar)
15. A person rowing at the rate of 5km/h in still water takes thrice as much time in going 40 km upstream as in going 40 km downstream. Find the speed of the stream. (2016)
16. A motorboat can travel 30 km upstream and 28 km downstream in 7 hours. It can travel 21 km upstream and return in 5 hours. Find the speed of the boat in still water and the speed of the stream. (NCERT Exemplar)
17. A two digit number is obtained by either multiplying the sum of the digits by 8 and then subtracting 5 or by multiplying the difference of the digits by 16 and then adding 3. Find the number. (NCERT Exemplar)
18. A railway half ticket costs half the full fare, but the reservation charges are the same on a half ticket as on a full ticket. One reserved first class ticket from the station A to B costs Rs 2530. Also, one reserved first class ticket and one reserved first class half ticket from stations A to B costs Rs. 3810. Find the full first class fare from station A to B and also the reservation charges for a ticket. (NCERT Exemplar)

19. A shopkeeper sells a saree at 8% profit and a sweater at 10% discount thereby, getting a sum Rs. 1008. If she had sold the saree at 10% profit and the sweater at 8% discount, she would have got Rs. 1028 then find the cost of the saree and the list price (price before discount) of the sweater. (NCERT Exemplar)
20. Dhinchak Pooja invested certain amount of money in two schemes A and B, which offer at the interest of 8% per annum and 9% per annum, respectively. She received Rs. 1860 as annual interest. However, had she interchanged the amount of investments in the two schemes, she would have received Rs. 20 more as annual interest. How much money did she invest in each scheme? (NCERT Exemplar)
21. Sushant had some bananas and he divided them into two lots A and B. He sold the first lot at the rate of Rs. 2 for 3 bananas and the second lot at the rate of Rs. 1 per banana, and got a total of Rs. 400. If he had sold the first lot at the rate of Rs 1 per banana and the second lot at the rate of Rs. 4 for 5 bananas, his total collection would have been Rs. 460. Find the total number of bananas he had. (NCERT Exemplar)

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