

Chapter 3 Class 10 Linear Equations In Two Variables - Mix Questions Worksheet 2 by teachoo

Chapter: [Chapter 3 Class 10 Maths – Linear Equations in Two Variables](#)

Name: _____

School: _____

Roll Number: _____

1. (3 Marks) A library has a fixed charge for the first three days and an additional charge for each day thereafter. Sarita paid ₹ 27 for a book kept for 7 days, while Susy paid ₹21 for the book she kept for 5 days. Find the fixed charge and the charge for each extra day.

2. (3 Marks) 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 the x-axis. What does this triangular area represent on the coordinate plane?

3. (3 Marks) A boat travels 30 km upstream and 44 km downstream in 10 hours. It can travel 40 km upstream and 55 km downstream in 13 hours. Let the speed of the boat in still water be x km/hr and the speed of the stream be y km/hr. Formulate the pair of linear equations for this situation.

4. (3 Marks) Draw the graphs for the equations $x + y = 5$ and $2x - y = 4$.

a) Find the solution to the system from the graph.

b) Shade the triangular region formed by these two lines and the y -axis.

c) If this graph represents a map where each unit is 1 km, what is the area of the shaded region?

5. (5 Marks) Two cities, A and B, are 120 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 6 hours. If they travel towards each other, they meet in 1 hour and 12 minutes (1.2 hours).

a) Let the speed of the car from A be x km/hr and from B be y km/hr. Set up the pair of linear equations for both scenarios.

b) What are the speeds of the two cars?

c) Conceptually, why is the meeting time shorter when they travel towards each other?

6. (5 Marks) A company produces two products, P1 and P2. Each unit of P1 requires 2 hours on Machine A and 1 hour on Machine B. Each unit of P2 requires 1 hour on Machine A and 3 hours on Machine B. On a given day, Machine A is available for 10 hours and Machine B is available for 15 hours.

a) Formulate a system of linear equations to represent the constraints on the machines.

b) Find the number of units of P1 and P2 that can be produced to fully utilize the time on both machines.

c) If the company makes a profit of ₹50 on P1 and ₹40 on P2, what would be the total profit for the day?

7. (5 Marks) A person wants to invest a total of ₹20,000 into two different schemes, A and B. Scheme A offers an annual interest of 5%, and Scheme B offers 7%. After one year, the total interest earned from both schemes is ₹1240.

a) Define your variables and set up the equations.

b) How much money was invested in each scheme?

c) If Scheme B's interest rate dropped to 6%, how much would the person have to invest in Scheme A to still earn at least ₹1200 in total interest?

8. (5 Marks) A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator. It becomes $\frac{1}{4}$ when 8 is added to its denominator.

a) Letting the fraction be $\frac{x}{y}$, form the pair of linear equations.

b) Find the fraction.

c) What happens to the value of the original fraction if you double both the numerator and the denominator? Explain.

9. (5 Marks) The area of a rectangle gets reduced by 9 square units if its length is reduced by 5 units and breadth is increased by 3 units. If we increase the length by 3 units and the breadth by 2 units, the area increases by 67 square units.

a) Set up the pair of linear equations.

- b) Find the original length and breadth of the rectangle.
- c) Explain why the initial area is not a linear term ($l \times b$) but the problem can still be solved using linear equations.

10. (5 Marks) A student is rowing a boat. It takes her 2 hours to row 20 km downstream, but 5 hours to return the same distance upstream.

- a) Model this situation with linear equations, where x is her rowing speed in still water and y is the speed of the current.
- b) Find her rowing speed in still water and the speed of the current.
- c) If the speed of the current doubled, how long would it take her to row 10 km downstream?

Important links

- Answer of this worksheet - <https://www.teachoo.com/25591/5361/Mix-Questions---Worksheet-2/category/Teachoo-Questions---Mix/>
- Full Chapter with Explanation, Activity, Worksheets and more – <https://www.teachoo.com/subjects/cbse-maths/class-10th/ch3-10th-pair-of-linear-equations-in-two-variables/>
- Science Class 10– <https://www.teachoo.com/subjects/science/class-10/>
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