

Pair of Linear Equations - Exercise 3.3

Exercise 3.3 with independently verified solutions.

CHAPTER

Pair of Linear Equations in Two Variables

RESOURCE

NCERT Exercises

SOURCE

NCERT Mathematics, Reprint 2026-27

PART 1

Verified NCERT questions and solutions

Verified NCERT questions and solutions

Solutions are checked independently and follow the supplied NCERT chapter edition.

QUESTION

Question 1

elimination method · substitution method

Solve each pair by elimination and substitution.

1. $x + y = 5; 2x - 3y = 4$
2. $3x + 4y = 10; 2x - 2y = 2$
3. $3x - 5y - 4 = 0; 9x = 2y + 7$
4. $\frac{x}{2} + \frac{2y}{3} = -1; x - \frac{y}{3} = 3$

Solution

1. $x = 5 - y \Rightarrow y = \frac{6}{5}, x = \frac{19}{5}$
2. $x = y + 1 \Rightarrow y = 1, x = 2$

3.

$$3x - 5y = 4, 9x - 2y = 7 \Rightarrow y = -\frac{5}{13}, x = \frac{9}{13}$$

4.

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

Substitution of each ordered pair verifies both original equations.

QUESTION

Question 2

elimination method · word problems

Form equations and solve by elimination.

1. Adding 1 to a fraction's numerator and subtracting 1 from its denominator makes 1; adding only 1 to the denominator makes $\frac{1}{2}$.
2. Five years ago Nuri was three times Sonu; ten years later Nuri will be twice Sonu.
3. A two-digit number has digit sum 9; nine times it is twice its reversal.
4. ₹2000 is withdrawn in ₹50 and ₹100 notes, 25 notes total.
5. A library charges a fixed amount for three days plus a daily amount thereafter; seven days cost ₹27 and five days ₹21.

Solution

1.

$$\frac{x+1}{y-1} = 1, \frac{x}{y+1} = \frac{1}{2} \Rightarrow x - y = -2, 2x - y = 1$$

$$(x, y) = (3, 5)$$

2.

$$N - 3S = -10, N - 2S = 10 \Rightarrow (N, S) = (50, 20)$$

3.

$$x + y = 9, 88x - 11y = 0 \Rightarrow (x, y) = (1, 8)$$

4.

$$x + y = 25, x + 2y = 40 \Rightarrow (x, y) = (10, 15)$$

5.

$$f + 4d = 27, f + 2d = 21 \Rightarrow (f, d) = (15, 3)$$

Final answer

Answers: 3/5; Nuri 50 and Sonu 20; 18; ten ₹50 notes and fifteen ₹100 notes; ₹15 fixed and ₹3 per extra day.