Mathematics — Ganita Manjari

Chapter 13 Test 9

Two Variables, One Line

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Choose one option in A; show working in B–D.
2. No calculators. Give exact answers unless an approximation is requested.
3. Read the scales on graphs carefully. Other diagrams are not necessarily to scale.

SECTION A

(5 questions × 1 mark = 5 marks)

1. A farm has x hens and y goats. The total number of legs is:

(A) $x + y$

(B) $2x + 4y$

(C) $4x + 2y$

(D) $6xy$

2. Expenditure E and income I satisfy $E = 0.8I$. What fraction of income is saved?

(A) $\frac{1}{10}$ (B) $\frac{1}{5}$

(C) $\frac{4}{5}$ (D) $\frac{5}{4}$

3. A transport model gives 8.5 buses and 3.5 vans. Why is this unsuitable as a vehicle count?

(A) Vehicle counts must be whole numbers

(B) Both values must be equal

(C) The values are negative

(D) Their sum must be zero

4. A walker's position is $s = 12 - 3t$ km, with t in hours. At $t = 2$, the position is:

(A) 3 km

(B) 12 km

(C) 6 km

(D) 18 km

5. All seats in 40-seat buses and 10-seat vans are filled. Which passenger total is impossible?

(A) 90 (B) 95

(C) 100 (D) 120

SECTION B

(4 questions × 2 marks = 8 marks)

6. Monthly savings were ₹1,800. Income then increased by ₹1,000 and expenditure by ₹700. Find the new savings and their increase.

7. A queue has 80 people. After 10 women join and 6 men leave, there are twice as many women as men. Find the original numbers.

8. A person cycles at 12 km/h and walks at 4 km/h. A 12 km journey takes 2 hours. Find the time spent cycling and walking.

9. The table shows two people's monthly finances, with x, y in rupees. Find each person's monthly income.

Person	Income (₹)	Expenditure (₹)	Savings (₹)
A	3x	5y	800
B	2x	3y	600

SECTION C

(3 questions × 3 marks = 9 marks)

10. A cost model is $C = 18x + 12y$ rupees, with x, y in kilograms. Rewrite it for gram quantities X, Y, then price 500 g of the first item and 250 g of the second.

11. A train's journey takes 2 hours less if its speed increases by 5 km/h, but 3 hours more if its speed decreases by 5 km/h. Find its original speed, time and distance.

12. Equal rows hold equal numbers of chairs. Adding two chairs per row adds 24 chairs; removing three original rows removes 45 chairs. Find the original arrangement and the total after both changes.

SECTION D

(1 application question × 3 marks = 3 marks)

13. Two travellers move east along a straight road as shown in figure. Find their initial separation, meeting time, and the distance each travels before meeting.

