Mathematics — Ganita Manjari

Chapter 13 Test 6

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. Which lists all possible numbers of common points of two distinct straight lines in a plane?

(A) Two only
(B) One only
(C) Infinitely many
(D) Zero or one

2. For non-zero denominators, $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$ implies that a pair has:

(A) One solution
(B) No solution
(C) Exactly two solutions
(D) Infinitely many solutions

3. The pair $x = 4$ and $2x = 8$ has:

(A) Only $(4,0)$
(B) Infinitely many solutions
(C) No solution
(D) Exactly four solutions

4. Which elimination result proves that a pair is inconsistent?

(A) $0 = 0$
(B) $2x = 6$
(C) $0 = -6$
(D) $5y = 0$

5. Two lines have two distinct common points. The lines must be:

(A) Parallel and distinct
(B) Coincident
(C) Perpendicular
(D) Intersecting at just one point

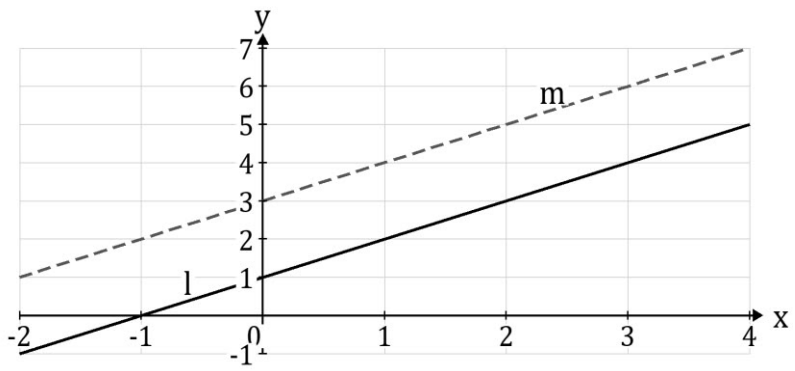
SECTION B

(4 questions × 2 marks = 8 marks)

6. Use coefficient ratios to determine the number of solutions of $3x - 2y + 7 = 0$ and $-6x + 4y - 14 = 0$.

7. For $3x = 12$ and $5y = -10$, explain why the coefficient-ratio test involves division by zero. Find the common solution directly.

8. The two lines are shown in figure. Explain why extending them cannot produce a common solution.



9. Both equations of a pair have constant term zero. Can the pair have no solution? Justify without using coefficient ratios.

SECTION C

(3 questions × 3 marks = 9 marks)

10. Classify the pair $x + 2y = 5$, $ax + 4y = b$ for all real values of a and b.

11. The table gives the slopes and y-intercepts of lines l, m. State each pair's number of common solutions, with reasons.

Pair	Slopes (l, m)	y-intercepts (l, m)
P	(2, 2)	(−1, 3)
Q	(−1, 3)	(4, 4)
R	(1/2, 1/2)	(0, 0)

12. With $2x + y = 6$, give another equation forming each type of pair: one solution, no solution and infinitely many solutions. Justify each.

SECTION D

(1 application question × 3 marks = 3 marks)

13. A report lists 2 long and 3 short strips totalling 31 cm, and 4 long and 6 short strips totalling 65 cm. Strips of the same type have equal lengths.

(i) Form the reported pair of equations.

(ii) Correct the second total to agree with the first.

(iii) If each long strip is 8 cm, find the short-strip length.