Mathematics — Ganita Manjari

Chapter 13 Test 7

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. Two rulers and one pen cost ₹34; one ruler and one pen cost ₹22. A ruler costs:

(A) ₹8 (B) ₹10
(C) ₹12 (D) ₹22

2. ₹20 and ₹50 notes total ₹160. Which pair gives their respective counts?

(A) (3, 2) (B) (2, 3)
(C) (4, 2) (D) (5, 1)

3. A mother and daughter are now m and d years old. Their age difference after eight years is:

(A) $m - d$
(B) $m - d + 8$
(C) $m + d + 16$
(D) $m - d - 8$

4. Adding 1 to both numerator and denominator of $\frac{x}{y}$ gives $\frac{2}{3}$. Which equation follows?

(A) $3x - 2y = 1$ (B) $3x - 2y = -1$
(C) $2x - 3y = -1$ (D) $2x - 3y = 1$

5. Two complementary angles differ by 18°. The smaller angle is:

(A) 18° (B) 54°
(C) 72° (D) 36°

SECTION B

(4 questions × 2 marks = 8 marks)

6. A shop reduces each bag's price by ₹20. Two discounted bags cost as much as one bag originally. Find the original and discounted prices.

7. The table shows two original bills. Each sandwich becomes ₹2 dearer and each juice ₹1 cheaper. Find the new bills and compare their increases.

Sandwiches	Juices	Bill (₹)
2	3	84
4	1	98

8. A fraction becomes $\frac{1}{2}$ when 2 is added only to its denominator, and $\frac{2}{3}$ when 1 is added only to its numerator. Find it.

9. A father's age equals the sum of his four children's ages. After 20 years, their total age will be twice his age. Find his present age.

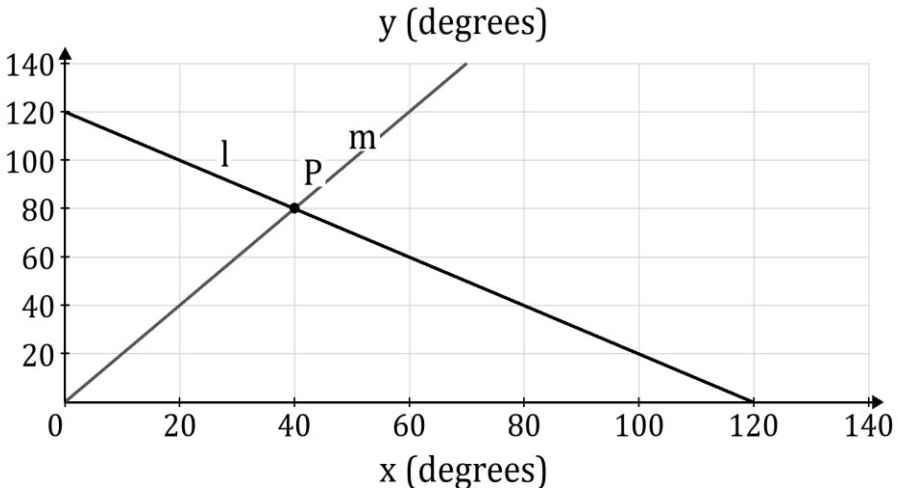
SECTION C

(3 questions × 3 marks = 9 marks)

10. A rectangle becomes a square if its length decreases by 3 cm and width increases by 2 cm. Its perimeter is 34 cm. Find its dimensions and area.

11. Riya and Aman have ₹150 altogether. Riya gives Aman ₹15, making their amounts equal. Find their original amounts and verify that the transfer preserves their total.

12. The lines in figure model two angles x and y of a triangle. Find all three angles and classify the triangle by its angles.



SECTION D

(1 application question × 3 marks = 3 marks)

13. In cyclic quadrilateral $ABCD$, $\angle A = (x + 7)°$, $\angle B = (y + 8)°$, $\angle C = (3y + 23)°$ and $\angle D = (4x + 12)°$. Find x, y and all four angles.