Mathematics — Ganita Manjari

Chapter 10 Test 9

How Quantities Combine: Understanding Data

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Calculators are not allowed.
2. Select one correct option in Section A. Show working in Sections B–D.
3. Use given data. Assume additive volumes and no loss unless stated.

SECTION A

(5 questions × 1 mark = 5 marks)

1. Weighted total 126, mean 18: what is the sum of the weights?

(A) 6 (B) 8
(C) 7 (D) 9

2. A 6 cm strip represents 24 hours. Find the length representing 8 hours.

(A) 1 cm (B) 2 cm
(C) 3 cm (D) 4 cm

3. Six hours are 30% of a project's time. Find its total time.

(A) 12 hours (B) 18 hours
(C) 24 hours (D) 20 hours

4. Why can 100% bars for full days also compare actual hours?

(A) All bars have the same total.
(B) Every activity takes equal time.
(C) Percentages are hours.
(D) The longest activity is sleep.

5. A day's three shares include 35% and 40%. Find the third.

(A) 15% (B) 20%
(C) 25% (D) 30%

SECTION B

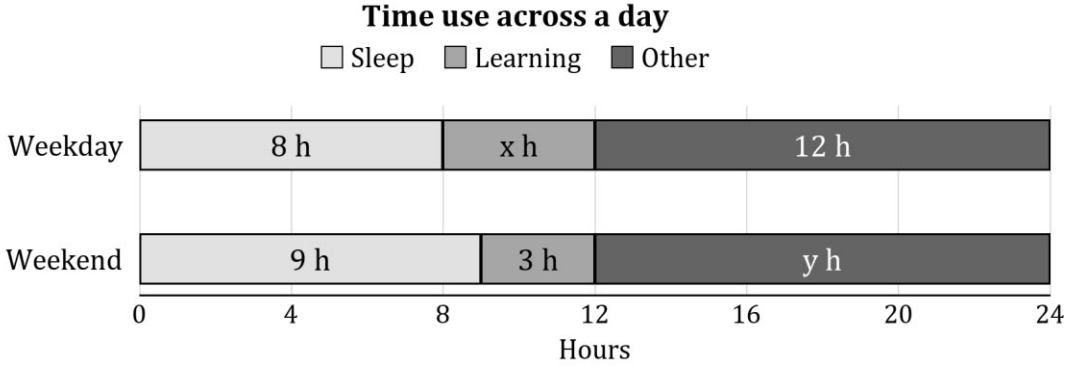
(4 questions × 2 marks = 8 marks)

6. A weighted mean is 24 with total weight 10. Keeping the weighted total unchanged, a report divides by 8. What mean appears? Explain the error.

7. A product's quality and service ratings are 4.5 and 3.5. Their positive weights sum to 10, and the overall rating is 4.2. Find both weights.

8. A diary records 4.8 hours of learning in a 24-hour day, but its chart labels learning 30%. Identify the error and find the correct percentage.

9. Each strip in figure covers a full 24-hour day. Find x and y.



SECTION C

(3 questions × 3 marks = 9 marks)

10. Only a project score changes, rising by 20 points. The overall weighted score rises from 70 to 74, with all weights unchanged. What percentage of the total weight belongs to the project?

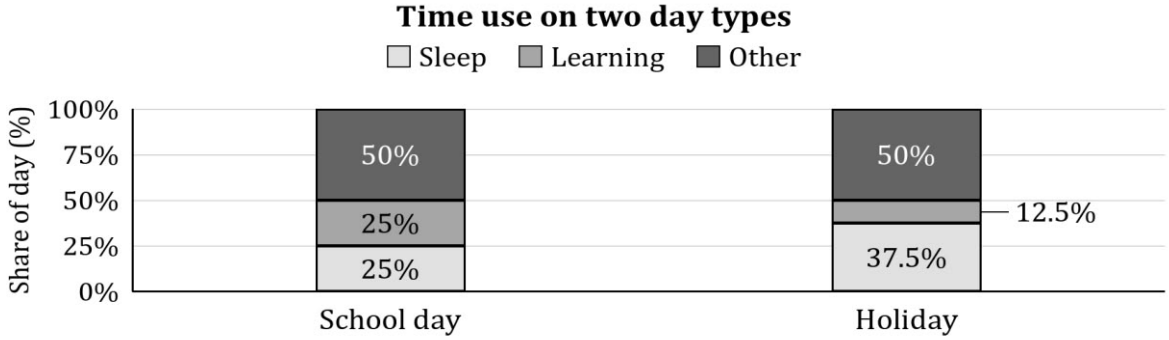
11. Mix 2 L of 8% dye solution with 3 L of another to obtain 14%. Assuming volume percentages and additive volumes, find the unknown concentration.

12. Scores 40, 60 and 80 have positive integer weights summing to 6 and weighted mean 60. Can the weights be recovered uniquely? Give two valid weight sets and verify them.

SECTION D

(1 application question × 3 marks = 3 marks)

13. The time shares in figure describe complete 24-hour school days and holidays.



(i) Find school-day learning hours.
(ii) Find holiday sleep hours.
(iii) Find learning hours across two school days and one holiday.