Mathematics — Ganita Manjari

Chapter 12 Test 6

Quadrilaterals

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. Figures are not necessarily to scale. Give reasons for geometrical conclusions.

SECTION A

(5 questions × 1 mark = 5 marks)

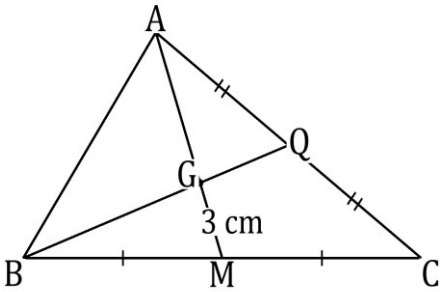
1. A median of a triangle joins a vertex to:

(A) Any point on the opposite side
(B) The opposite-side midpoint
(C) The foot of any perpendicular
(D) An adjacent vertex

2. If G is the centroid on median AM, then AG equals:

(A) $\frac{AM}{3}$
(B) $\frac{AM}{2}$
(C) $2AM$
(D) $\frac{2AM}{3}$

3. G is the centroid in figure. Find AG.



(A) 6 cm
(B) 9 cm
(C) 3 cm
(D) 1.5 cm

4. The centroid of a non-degenerate triangle lies:

(A) At a vertex
(B) On a side
(C) Inside the triangle
(D) Outside an obtuse triangle

5. Two medians meet at G. What must be true of the third median?

(A) It passes through G
(B) It is parallel to one median
(C) It ends at G
(D) It bisects another median

SECTION B

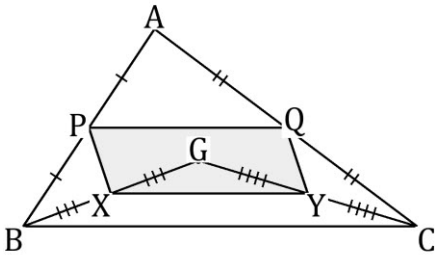
(4 questions × 2 marks = 8 marks)

6. A centroid G on median AM is reported to have $AG = 2x + 1$ and $GM = x - 1$ cm, with $x > 1$. Can these measurements be correct?

7. The vertex-to-centroid part of a median is 5 cm longer than the remaining part. Find the whole median.

8. AM, BN are medians meeting at centroid G. Prove $AG : BG = AM : BN$.

9. In figure, P, Q are midpoints of AB, AC; X, Y are midpoints of BG, CG. Prove that $PQYX$ is a parallelogram.



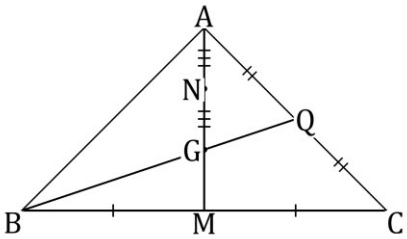
SECTION C

(3 questions × 3 marks = 9 marks)

10. Medians AD, BE meet at G; the third median CF meets BE at H. Use the two-median division result to compare G and H.

11. The three medians divide $\triangle ABC$ into six small triangles. Prove that all six have equal areas.

12. In figure, $BM = MC$, $AQ = QC$, and medians AM, BQ meet at G. Point N is midpoint of AG. Compare AN, NG, GM with proof.



SECTION D

(1 application question × 3 marks = 3 marks)

13. Two medians of a triangular display are 18 cm and 24 cm. Only their vertex-to-centroid portions are decorated with ribbon costing ₹2 per cm. (i) Find each decorated length. (ii) Find the total ribbon cost. (iii) Find the total undecorated length.