📘 Class 10 Mathematics Chapter 6 :   Triangles

🎯 25 Most Repeated & Important Board Questions
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🔵 Section A: Multiple Choice Questions (MCQs)

Q1. In △ABC, if DE || BC and AD/DB = 3/5, then AE/EC = ? (CBSE 2021)
a) 3/5   b) 5/3   c) 8/3   d) 3/8

Q2. In right triangle ABC, right-angled at B, if AB = 6 cm and BC = 8 cm, find AC. (CBSE 2022)
a) 10 cm   b) 12 cm   c) 9 cm   d) 11 cm

Q3. If two triangles are similar, what is the ratio of their areas in terms of sides? (CBSE 2020)
a) Ratio of corresponding sides   b) Square of ratio of sides   c) Ratio of angles   d) Equal

Q4. In △PQR, if ∠P = ∠R and PQ = 6 cm, PR = 8 cm, then QR = ? (CBSE 2020)
a) 14 cm   b) 10 cm   c) 12 cm   d) 6 cm

Q5. If △ABC ~ △DEF and AB/DE = 2/3, then Area(△ABC) / Area(△DEF) = ? (CBSE 2023)
a) 2/3   b) 4/9   c) 9/4   d) 3/2

🟠 Section B: Short Answer Type Questions

Q6. In a triangle, a line parallel to one side divides the other two sides proportionally. Prove it. (CBSE 2022)

Q7. In △ABC, DE || BC and AD = 3 cm, DB = 4 cm, AE = 4.5 cm. Find EC. (CBSE 2017)

Q8. If in two triangles, areas are equal and one angle is equal, prove they are similar. (CBSE 2021)

Q9. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides. (CBSE 2019)

Q10. D and E are points on sides AB and AC of triangle ABC such that DE || BC. Prove that triangle ADE ~ triangle ABC. (CBSE 2023)

🟡 Section C: Long Answer Type Questions

Q11. In triangle ABC, D and E are points on AB and AC respectively such that DE || BC. Prove that AD/DB = AE/EC. (CBSE 2020)

Q12. Prove that in a right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides. (CBSE 2022)

Q13. In triangle XYZ, right-angled at Y, if XY = 5 cm, YZ = 12 cm, find XZ using Pythagoras theorem. (CBSE 2018)

Q14. State and prove the converse of Pythagoras theorem. (CBSE 2023)

Q15. Triangle ABC is right-angled at C. Prove that $AB^2 = AC^2 + BC^2$. (CBSE 2017)

🟢 Section D: Competency-Based / Application Questions

Q16. Two friends are standing on opposite sides of a road. One sees a lamp post at 45°, the other at 60°. The road is 20 m wide. Find the height of the lamp post. (CBSE 2024)

Q17. A pole is on a building. From a point on ground, the angle of elevation of the pole top is 60° and building top is 45°. Height of building is 20 m. Find the height of pole. (CBSE Sample)

🔴 Section E: Miscellaneous & Repeated Concepts

Q18. In △DEF, DE = 4 cm, EF = 6 cm, DF = 8 cm. In △XYZ, XY = 2 cm, YZ = 3 cm, XZ = 4 cm. Are triangles similar? (CBSE 2016)

Q19. ABC is a triangle in which AB = AC. D is on AB and E on AC, DE || BC. Prove △ADE ~ △ABC. (CBSE 2020)

Q20. Find the height of a triangle whose area is 60 cm² and base is 12 cm. (CBSE 2023)

Q21. In △ABC and △DEF, ∠A = ∠D, ∠B = ∠E and AB/DE = BC/EF. Are the triangles similar? (CBSE 2019)

Q22. A 7 m ladder reaches a window 4 m above ground. Find the distance of ladder foot from wall. (CBSE 2021)

Q23. In triangle PQR, ∠P = ∠Q and PR = 6 cm, QR = 8 cm. Find PQ. (CBSE 2017)

Q24. In triangle ABC, right-angled at B, if AC = 13 cm and AB = 5 cm, find BC. (CBSE 2022)

Q25. Prove that if a perpendicular is drawn from the right angle vertex to hypotenuse, the triangles on either side are similar to whole triangle. (CBSE 2016)

✅ Answer Key:

1. b) 5/3

2. a) 10 cm

3. b) Square of ratio of sides

4. b) 10 cm

5. b) 4/9

6. Basic Proportionality Theorem

7. EC = 6 cm

8. Triangles similar by equal area & angle (SAS criterion)

9. Area ratio = (side ratio)^2

10. △ADE ~ △ABC by AA

11. Apply BPT: AD/DB = AE/EC

12. Statement & proof via similar triangles

13. XZ = 13 cm

14. Converse: prove triangle is right-angled

15. $AB^2 = AC^2 + BC^2$ by Pythagoras

16. $h = 10\sqrt{3}$ m

17. $h = 20(\sqrt{3} - 1)$ m

18. Not similar (sides not proportional)

19. Use AA similarity

20. Height = 10 cm

21. Triangles are similar (AA rule)

22. Distance = $\sqrt{33} \approx 5.74$ m

23. PQ = 6 cm

24. BC = 12 cm

25. All triangles similar by AA