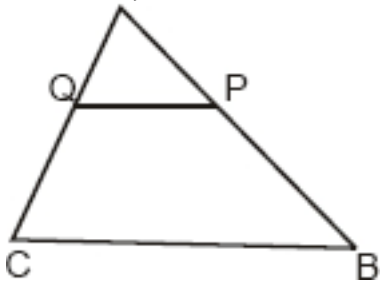
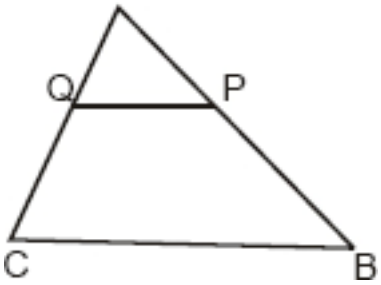
CHAPTER 6
ASSIGNMENT OF TRIANGLES

1. In the fig. P and Q are points on the sides AB and AC respectively of triangle ΔABC such that AP = 3.5 cm, PB = 7 cm, AQ = 3 cm and QC = 6 cm. If PQ = 4.5 cm, find BC.



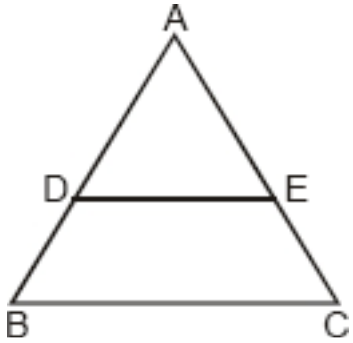
2. The lengths of the diagonals of a rhombus are 30 cm and 40 cm. Find the side of the rhombus.

3. In the fig., PQ ∥ BC and AP: PB = 1: 2. Find $\frac{ar(\Delta APQ)}{ar(\Delta ABC)}$.



4. The perimeter of two similar triangles ABC and LMN are 60 cm and 48 cm respectively. If LM = 8 cm, then what is the length of AB?

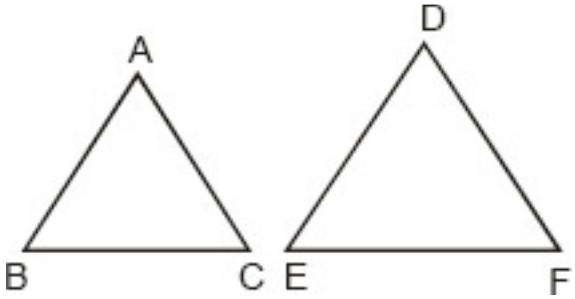
5. In ΔABC shown in figure, DE ∥ BC. If BC = 8 cm, DE = 6 cm and area of ΔADE = 45 cm^2, what is the area of ΔABC?



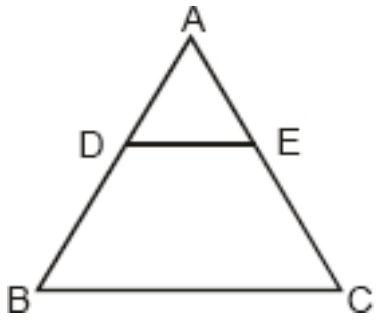
6. If the areas of two similar triangles are in ratio 25: 64, write the ratio of their corresponding sides.

7. If one diagonal of a trapezium divides the other diagonal in the ratio 1:3. Prove that one of the parallel sides is three times the other.

8. In the given figure, ΔABC and ΔDEF are similar, BC = 3 cm, EF = 4 cm and area of ΔABC = 54 cm^2. Determine the area of ΔDEF.



9. In the given figure, ABC is a triangle in which AB = AC, D and E are points on the sides AB and AC respectively, such that AD = AE. Show that the points B, C, E and D are concyclic.



10. ABCD is a trapezium with AB ‖ DC in which diagonals AC and BD intersect at E and AAED ˜ ABEC. Prove that AD = BC.

11. ABC is a triangle. PQ is a line segment intersecting AB in P and AC in Q such that PQ ‖ BC and divides ΔABC into two parts equal in area. Find BP/AB,

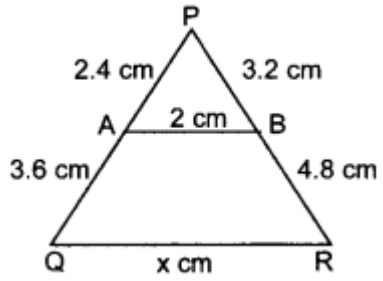
12. ABC is a triangle in which AB = AC and D is any point in BC. Prove that: $(AB)^2 - (AD)^2 = BD.\ CD$.

13. AD is the median of Δ ABC, O is any point on AD. BO and CO produced meet AC and AB in E and F respectively. AD is produced to X such that OD = DX. Prove that AO: AX = AF: AB.

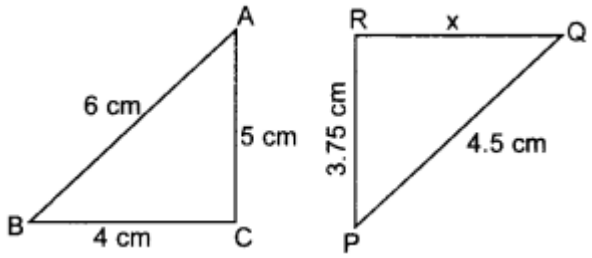
14. In a triangle ABC, P divides the sides AB such that AP: PB = 1: 2, Q is a point on AC such that PQ ‖ BC. Find the ratio of the areas of ΔAPQ and trapezium BPQC.

15. In ΔABC, D and E are points on sides AB and AC respectively such that DE || BC and AD : DB = 3 : 1. If EA = 6.6 cm then find AC.

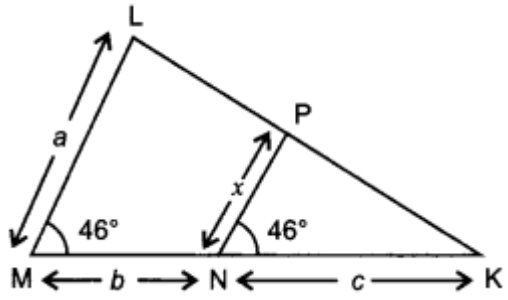
16. In the given figure, value of x (in cm) is _____ .



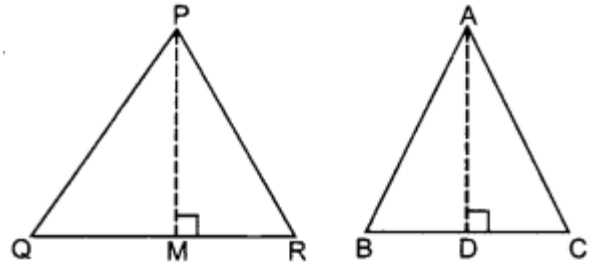
17. In the given figure, if ΔABC ~ ΔPQR. The value of x is_____ .



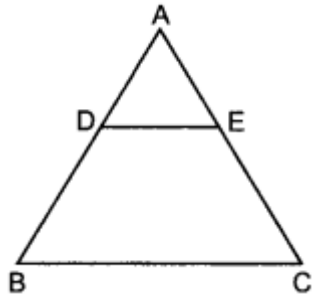
18. In fig. ZM = ZN = 46°, express x in terms of a, b and c, where a, b and c are lengths of LM, MN and NK respectively.



19. ΔABC ~ ΔPQR. Area of ΔABC = 81 cm² and area of ΔPQR =121 cm². If altitude AD = 9 cm, then PM = _____.



20. In fig., DE || BC, AD = 1 cm and BD = 2 cm. What is the ratio of the ar(ΔABC) to the ar(ΔADE)? [Delhi 2019]



21. In figure, S and T are points on the sides PQ and PR, respectively of APQR, such that PT = 2 cm, TR = 4 cm and ST is parallel to QR. Find the ratio of the areas of ΔPST and ΔPQR.

22. Two sides and the perimeter of one triangle are respectively three times the corresponding sides and the perimeter of the other triangle. Are the two triangles similar?

23. ΔABC~ΔPQR with BC/QR = 1/3, then find ar(ΔPQR)/ar(ΔABC).

24. Is the triangle with sides 14cm, 12cm and 17cm a right triangle? Why?

25. The lengths of diagonals of a rhombus are 24 cm and 32 cm. Find the length of its sides.

26. PQR is an isosceles triangle with QP=QR. If $PR^2 = 2QR^2$, prove that ΔPQR is right angled.

27. In a triangle ABC, line DE is drawn parallel to side BC such that AD/DB = AE/EC. Show that BAC is an isosceles triangle.

28. A 20 m long vertical pole casts a shadow 10 m long on the ground. At the same time a tower casts a shadow 50 m long on the ground. Find the height of the tower.

29. State and prove basic proportionality theorem.

30. L and M are two points on the sides DE and DF of the triangle DEF such that DL=4, LE=4/3, DM=6 and DF=8. Is LM parallel to EF? Why?

31. In a triangle PQR and MST, ∠P=55°, ∠Q = 25°, ∠M = 100° and ∠S = 25°. Is ΔQPR similar to ΔTSM? Why?

32. Match the column

1. In ΔABC and ΔPQR $\frac{AB}{PQ}=\frac{AC}{PR}$, $\angle A = \angle P$ $\Rightarrow \Delta ABC \sim \Delta PQR$	(A) AA similarity criterion
2. In ΔABC and ΔPQR $\angle A = \angle P, \angle B = \angle Q$ $\Rightarrow \Delta ABC \sim \Delta PQR$	(B) SAS similarity criterion
3. In ΔABC and ΔPQR $\frac{AB}{PQ}=\frac{AC}{PR}=\frac{BC}{QR}$ $\Rightarrow \Delta ABC \sim \Delta PQR$	(C) SSS similarity criterion
4. In ΔABC, DE ‖ BC $\Rightarrow \frac{AD}{BD}=\frac{AE}{CE}$	(D) BPT