MATHEMATICS (Class-10)

Chapter : Triangles

1. In Δ PQR, given that S is a point on PQ such that ST || QR and PS/SQ=3/5 If PR = 5.6 cm, then find PT.
2. In Δ ABC, AE is the external bisector of <A, meeting BC produced at E. If AB = 10 cm, AC = 6 cm and BC = 12 cm, then find CE.
3. *P* and *Q* are points on sides *AB* and *AC* respectively, of Δ*ABC*. If *AP* = 3 cm,*PB* = 6 cm, *AQ* = 5 cm and *QC* = 10 cm, show that *BC* = 3 *PQ*.
4. The image of a tree on the film of a camera is of length 35 mm, the distance from the lens to the film is 42 mm and the distance from the lens to the tree is 6 m. How tall is the portion of the tree being photographed?
5. D is the midpoint of the side BC of Δ ABC. If P and Q are points on AB and on AC such that DP bisects <BDA and DQ bisects <ADC, then prove that PQ || BC.
6. If a straight line is drawn parallel to one side of a triangle intersecting the other two sides, then it divides the two sides in the same ratio.
7. If a straight line divides any two sides of a triangle in the same ratio, then the line must be parallel to the third side.
8. *ABCD* is a quadrilateral with *AB* =*AD*. If *AE* and *AF* are internal bisectors of <*BAC* and <*DAC* respectively, then prove that *EF* || *BD*. In a Δ ABC, D and E are points on AB and AC respectively such that AD/ DB = AEC/EC and <ADE = <DEA. Prove that Δ ABC is isosceles.
9. In a Δ ABC, points D, E and F are taken on the sides AB, BC and CA respectively such that DE || AC and FE || AB.
10. The internal bisector of <*A* of Δ*ABC* meets *BC* at *D* and the external bisector of <*A* meets *BC* produced at *E*. Prove that BD/ *BE* = *CD/CE*
11. If a perpendicular is drawn from the vertex of a right angled triangle to its hypotenuse, then the triangles on each side of the perpendicular are similar to the whole triangle.
12. A man sees the top of a tower in a mirror which is at a distance of 87.6 m from the tower. The mirror is on the ground, facing upward. The man is 0.4 m away from the mirror, and the distance of his eye level from the ground is 1.5 m. How tall is the tower? (The foot of man, the mirror and the foot of the tower lie along a straight line).