CHAPTER - SIMILAR TRIANGLE CLASS 10TH

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1. If a straight line divides any two sides of a triangle in the same ratio, then prove that the line must be parallel to

the third side.

2. Prove that, the internal (external) bisector of an angle of a triangle divides the opposite side internally

(externally) in the ratio of the corresponding sides containing the angle.

3. In PQR, given that S is a point on PQ such that ST II QR and PS/SQ= 3/5 If PR = 5.6 cm, then find PT.

4. In ABC, the internal bisector AD of < A meets the side BC at D. If BD = 2.5 cm, AB = 5 cm and AC = 4.2 cm,

then find DC.

5. D is the midpoint of the side BC of 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 II BC.

6. In ABC, < ABC=90° and BD AC. If AB=5 cm, BD=3 cm and CD=5cm, then find the value of BC.

7. In a quadrilateral ABCD, the bisectors of < B and < D intersect on AC at E. Prove that AB

/ BC = AD/DC

8. The internal bisector of < A of ABC meets BC at D and the external bisector of < A meets BC produced at E.

Prove that BD/BE = CD/CE

9. ABCD is a quadrilateral with AB =AD. If AE and AF are internal bisectors of < BAC and < DAC respectively,

then prove that EF II BD.

10. A girl of height 120 cm is walking away from the base of a lamp-post at a speed of 0.6 m/sec. If the lamp is

3.6 m above the ground level, then find the length of her shadow after 4 seconds

11. 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.

12. Prove that in any triangle the sum of the squares of any two sides is equal to twice the square of half of the

third side, together with twice the square of the median which bisects the third side.

13. If ABC is an obtuse angled triangle, obtuse angled at B and if AD CB then Prove that

AC2=AB2 + BC2+2BCxBD

14. In equilateral triangle ABC, if ADBC, then prove that 3AB2= 4AD2

15. In a right triangle ABC, right angled at C, P and Q are points of the sides CA and CB respectively, which

divide these sides in the ratio 2: 1. Prove that (i) 9AQ2= 9AC2 + 4BC2 (ii) 9BP2= 9BC2 + 4AC2 (iii) 9 (AQ2+BP2)

= 13AB2 [ Hint Since P divides AC in the ratio 2 : 1, CP= 2/3 AC, QC= 2/3 BC]

16. P and Q are the mid points on the sides CA and CB respectively of triangle ABC right angled at C. Prove that

4(AQ2 +BP2) = 5AB2

17. In an equilateral ABC, the side BC is trisected at D. Prove that 9AD2 = 7AB2

18. Prove that three times the sum of the squares of the sides of a triangle is equal to four times the sum of the

squares of the medians of the triangle.

19. If ABC is an obtuse angled triangle, obtuse angled at B and if AD CB Prove that AC2 =AB2 + BC2+2BCxBD

20. If ABC is an acute angled triangle, acute angled at B and AD BC prove that AC2 =AB2 + BC2 −2BCx BD