PRACTICE WORKSHEET

Subject: Mathematics **Class:** CBSE 10th

Chapter: Similarity Of Triangles **Worksheet:** M-6

1. 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?

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

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

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

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

6. 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.

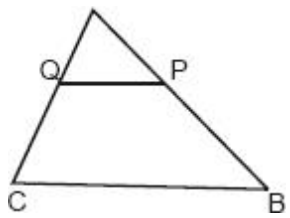
7. A 20 m long vertical pole casts a shadow 10 m long on the ground. At the same time a tower casts a shadow 50 m long on the ground. Find the height of the tower.

8. State and prove basic proportionality theorem.

9. 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?

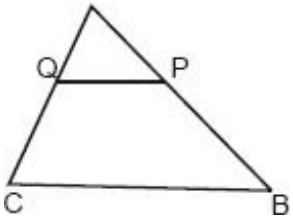
10. In a triangle PQR and MST, ∠P=55°, ∠Q = 25°, ∠M = 100° and ∠S = 25°. Is ΔQPR similar to ΔTSM? Why?

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



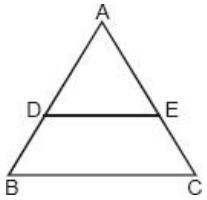
12. The lengths of the diagonals of a rhombus are 30 cm and 40 cm. Find the side of the rhombus.

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



14. 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?

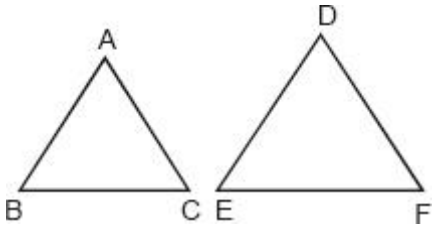
15. In ΔABC shown in figure, DE || BC. If BC = 8 cm, DE = 6 cm and area of ΔADE = 45 cm^2, what is the area of ΔABC?



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

17. 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.

18. 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.



19. A right triangle has hypotenuse of length q cm and one side of length p cm. If (q ï¿½ p) - 2, express the length of third side of the right triangle in terms of q.

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

22. 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,

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

24. AD is the median of ΔABC, 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.

25. 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.

26. In ΔLMN, ∟L = 50°and ∟N= 60°. If ΔLMN is similar to ΔPQR, then find ∟Q.

28. D, E and F are mid points of sides BC, AC and AB respectively of triangle ABC. Find ar(ΔDEF)/ar(ΔABC).

29. If one diagonal of a trapezium divides the other diagonal in the ratio 1:2. Prove that one of the parallel sides is double the other.

30. ABC is a right triangle, right angled at A, and D is the mid-point of AB. Prove that $BC^2 = CD^2 + 3BD^2$.

31. If the diagonals of a quadrilateral divide each other proportionally, prove that it is a trapezium.

32. Triangle ABC is right angled at B and D is the mid-point of BC. Prove that:- $AC^2 = 4AD^2 . 3AB^2$.