# BHARATH COACHING CENTRE

10th CBSE | Maths | Total: 50

Triangles | Time: 1.30Hrs

SECTION – A 5 x 1 = 5

1. In Δ ABC, if X and Y are points on AB and AC respectively such that $\frac{AX}{XB} = \frac{3}{4}$, AY = 5 cm and YC = 9 cm, then that whether XY and BC parallel or not.
2. In Δ DEW, AB ∥ EW. If AD = 4 cm, DE = 12 cm and DE = 12 cm and DW = 24 cm, then find the value of DB.
3. If Δ OCA ~ Δ ODB, then prove that AC ∥ BD.
4. Δ ABC and Δ BDE are two equilateral triangle such that BD = $\frac{1}{3}$BC. Find the ratio of areas of Δ ABC and Δ BDE.
5. In an isosceles right triangle, if the hypotenuse is $5\sqrt{2}$ cm, then find the lengths of the sides of the triangle.

SECTION – B 5 x 2 = 10

6. ABCD is a trapezium, in which AB is parallel to DC and its diagonals intersects each other at point O. Show that $\frac{AO}{BO} = \frac{CO}{DO}$.
7. In the given figure, EB ⊥ AC, BG ⊥ AE and CF ⊥ AE. Prove that
   a) Δ ABG ~ Δ DCB  b) $\frac{BC}{BD} = \frac{BE}{BA}$
8. In Δ ABC ~ Δ PQR and their corresponding altitudes AD and PS are in the ratio 5: 7, find the ratio of the areas of Δ ABC and Δ PQR.
9. Prove that in an equilateral triangle, three times of the square of one of the sides is equal to four times of the square of one of its altitudes.
10. Prove that the sum of the squares of the sides of a rhombus is equal to the sum of the square of its diagonals.

SECTION – C 5 x 3 = 15

11. The diagonals of a quadrilateral ABCD intersect each other at the point O such that $\frac{AO}{BO} = \frac{CO}{DO}$. Show that ABCD is a trapezium.

12. In the given figure, ΔABC ~ ΔDEF, AP bisects ∠CAB and DQ bisects ∠FDE.

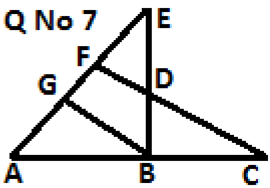
 a) $\frac{AP}{DQ} = \frac{AB}{DE}$ b) Δ CAP ~ Δ FDQ

13. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding medians.
14. In a right angled ΔABC, right angled at B, points D and E divides BC and BA respectively in the ratio 2:1. Prove that $9AD^2 + 9CE^2 = 13AC^2$.
15. As shown in the figure, a 26m long ladder is placed at A. If it is placed along wall PQ, reaches a height of 24m, whereas it reaches a height of 10m, if it is placed against wall RS. Find the distance between the walls.

SECTION – D 5 x 4 = 20

16. In the given figure, PQ ∥ BA and PR ∥ CA. If PD = 12cm, find BD x CD.
17. Prove that if two sides and a median bisecting the third sides of a triangle are respectively proportional to the corresponding sides and the median of another triangles, then the two triangles are similar.
18. Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.
19. In the figure, BL and CM are the medians of a triangle right angled at A. Prove that $4(BL^2 + CM^2) = 5BC^2$
20. Prove that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides or state and prove Pythagoras theorem.

Q No 7

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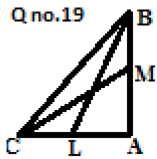


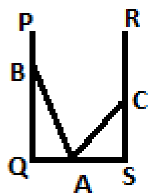


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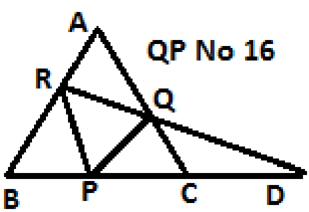


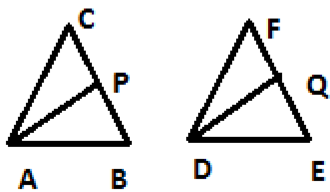


Q No. 12