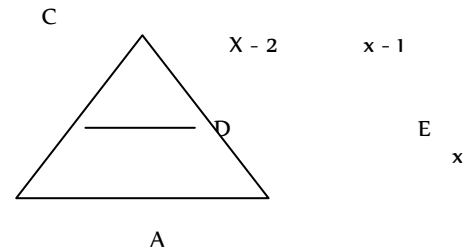


1. What value of x will make DE || AB in the given figure?

(x = 4)

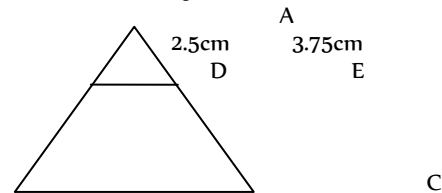
+ 2



B

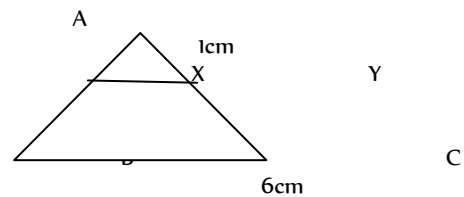
2. In figure, DE is parallel to base BC. If AD = 2.5 cm, BD = 3.0 cm and AE = 3.75 cm, find the length of AC

(8.25cm)

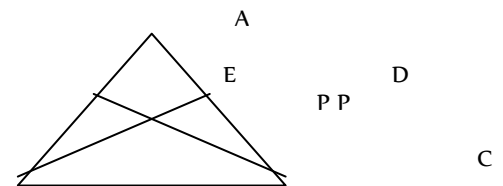


3. In the figure, XY || BC . Find the length of XY

(2cm)

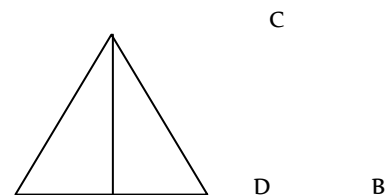


4. In figure, considering triangles BEP and CDP, prove that:  
BP X PD = EP X PC



5. D is a point on the side BC of a  $\triangle ABC$  such that angle ADC = angle BAC. Prove that  $CA \cdot CD = CB \cdot CA$

6. In figure angle ACB = 90°, CD perpendicular to AB, prove that  $CD^2 = BD \cdot CD$



7. A vertical pole which is 2.25m long casts a 6.75m long shadow on the ground. At the same time a vertical Tower casts a 90m long shadow on the ground. Find the height of the tower

(30m)  
(6cm)

8. If  $\triangle ABC \sim \triangle PQR$ . Also ar ( $\triangle ABC$ ) = 4 ar ( $\triangle PQR$ ). If BC = 12cm, find QR

9. The areas two similar triangles ABC and DEF are 36 cm<sup>2</sup> and 81 cm<sup>2</sup> respectively. If EF = 6.9 cm, determine BC

(4.6 cm)

10. Two isosceles triangles have equal angles and their areas are in the ratio 81: 25. Find the ratio of their Corresponding heights

11. D, E and F are respectively the mid points of the sides BC, CA and AB of  $\triangle ABC$ . Find the ratio of the areas of  $\triangle DEF$  and  $\triangle ABC$

(1 : 4)

12. The perimeters of two similar triangles are 36cm and 48cm respectively. If one side of the first triangle is 9cm, what is the corresponding side of the other triangle

(12cm)

13. In triangle ABC, AB = 3a, and BC = 2a. Prove that  $\angle A = 90^\circ$

14. In triangle ABC,  $\angle BAC = 90^\circ$  and  $AD \perp BC$ . If BD = 8cm, DC = 18 cm, find AD

15. Two poles of height 8m and 13m stand on a plane ground. If the distance between their tips is 13m, find the distance between their feet

(12m)

16. Two poles of height 10m and 15m stand vertically on a plane ground. If the distance between their feet is  $5\sqrt{3}$ m, find the distance between their tops

(10m)

17. The perpendicular from A on side BC of a triangle ABC intersects BC at D such that  $BD = 3CD$ . Prove that  $2 AB^2 - 2 AC^2 = BC^2$

18. In an isosceles triangle ABC with  $AB = AC$ , BD is a perpendicular from B to the side AC. Prove that  $BD^2 - CD^2 = 2CD \cdot AD$

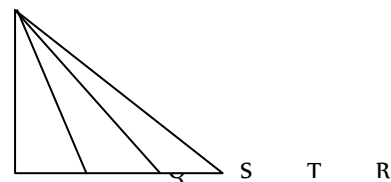
19. P and Q are points on the sides CA and CB respectively of a  $\triangle ABC$  right angled at C. Prove that

$$AQ^2 + BP^2 = AB^2 + PQ^2$$

20. In  $\triangle ABC$ , if AD is the median, show that  $AB^2 + AC^2 = 2(AD^2 + CD^2)$

21. In figure, T trisects the side QR of right triangle PQR.

$$\text{Prove that } 8 PT^2 = 3 PR^2 + 5 PS^2$$



22. If BL and CM are medians of a triangle ABC right angled at A, then prove that  $4(BL^2 + CM^2) = 5 BC^2$

23. In a triangle ABC,  $AB = BC = CA = 2a$  and AD perpendicular to BC. Prove that  $AD = a\sqrt{3}$  and area of

$$\triangle ABC = \sqrt{3} a^2$$

24. In an equilateral triangle ABC, AD is the altitude drawn from A on side BC. Prove that  $3AD^2 = AB^2 - BD^2$

25. In a triangle ABC, AD is perpendicular on BC, prove that  $AB^2 + CD^2 = AC^2 + BD^2$

26. Prove that the sum of the squares of the sides of a rhombus is equal to the sum of the squares on its diagonals

27. P is a point in the interior of rectangle ABCD. If P is joined to each of the vertices of the rectangle, prove

$$\text{That } PB^2 + PD^2 = PA^2 + PC^2$$