# 1. Similarity

1. Base of a triangle is 9 and height is 5. Base of another triangle is 10 and height is 6. Find the ratio of areas of these triangles.
2. In figure 1.13 BC Perpendicular to AB, AD Perpendicular to AB, BC = 4, AD = 8, then find A( Triangle ABC) /A( triangle ADB).

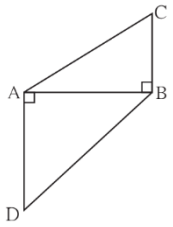


**Fig. 1.13**

3. Measures of some angles in the figure are given. Prove that

$$\frac{AP}{PB} = \frac{AQ}{QC}$$

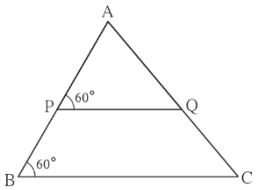


**Fig. 1.38**

4. In triangle LMN, ray MT bisects angle LMN If LM = 6, MN = 10, TN = 8, then find LT.

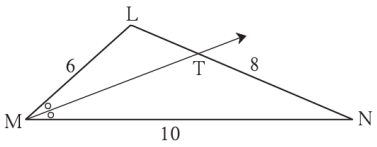
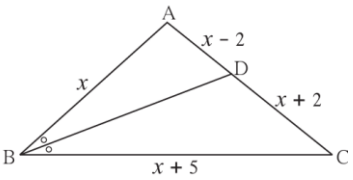


**Fig. 1.42**

5. In triangle ABC, seg BD bisects angle ABC. If AB = x, BC = x + 5, AD = x – 2, DC = x + 2, then find the value of x.




6. As shown in figure 1.57, two poles of height 8 m and 4 m are perpendicular to the ground. If the length of shadow of smaller pole due to sunlight is 6 m then how long will be the shadow of the bigger pole at the same time?

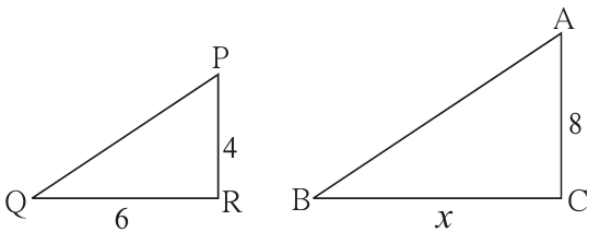


**Fig. 1.57**

7. In triangle ABC, AP perpendicular to BC, BQ perpendicular to AC B- P-C, A-Q - C then prove that, triangle CPA ~ triangle CQB. If AP = 7, BQ=8, BC=12 then find AC.

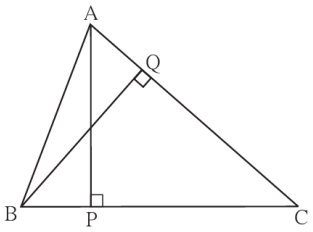



**Fig. 1.58**

8. In the figure, seg AC and seg BD intersect each other in point P and AP/ CP = BP/ DP . Prove that, triangle ABP ~ triangle CDP

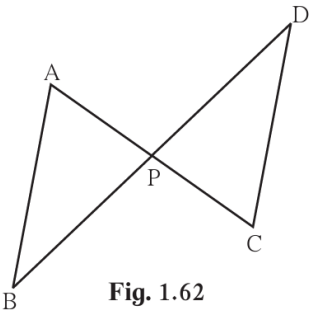



**Fig. 1.62**

9. The ratio of corresponding sides of similar triangles is 3 ◌: 5; then find the ratio of their areas.
10. Triangle LMN ~ triangle PQR, 9 X A (triangle PQR ) = 16 X A (triangle LMN). If QR = 20 then find MN.
11. Triangle ABC and Triangle DEF are equilateral triangles. If A(Triangle ABC) : A (Triangle DEF) = 1 : 2 and AB = 4, find DE.
12. Triangle MNT ~ Triangle QRS. Length of altitude drawn from point T is 5 and length of altitude drawn from point S is 9. Find the ratio A( Triangle MNT) /A( Triangle QRS) .
13. In quadrilateral ABCD, seg AD || seg BC. Diagonal AC and diagonal BD intersect each other in point P. Then show that AP/ PD = PC /BP.