CHAPTER-6

TRIANGLES

QUESTION BANK

1. ΔABC and ΔPQR are similar triangles such that $\angle A = 32^0$ and $\angle R = 65^0$ then $\angle B$ is

   (a) 83^0 (b) 32^0 (c) 65^0 (d) 97^0

2. If $\Delta ABC \cong \Delta DEF, \angle A = 47^0, \angle E = 83^0$, the value of $\angle C$

   (a) 47^0 (b) 30^0 (c) 40^0 (d) 50^0

3. If $\Delta ABC \cong \Delta RQP, \angle A = 80^0, \angle B = 60^0$, the value of $\angle P$ is.

   (a) 60^0 (b) 50^0 (c) 40^0 (d) 30^0

4. If $\Delta ABC \sim \Delta DEF, BC = 4cm, EF = 5cm$ and $ar(\Delta ABC) = 80cm^2$, the $ar(\Delta DEF)$ is

   (a) 100 cm^2 (b) 125cm^2 (c) 150 cm^2 (d) 200 cm^2

5. ABC and DEF are similar triangles such that $\angle A = 47^0$ and $\angle E = 83^0$, then $\angle C$ is.

   (a) 60^0 (b) 70^0 (c) 50^0 (d) 80^0

6. $\Delta ABC \sim \Delta PQR$. M is the midpoint of BC and N is the midpoint of QR. If the area of $\Delta ABC = 100sq.cm$ and the area of $\Delta PQR = 144sq.cm$. If AM = 4 cm then PN is

   (a) 4.8 cm (b) 12 cm (c) 4 cm (d) 5.6 cm

7. If a vertical pole of length 6 cm casts a shadow 4m long on the ground and at the same time a tower casts a shadow 28 m long, then the height of the tower is.

   (a) 42 m (b) 21 m (c) 12 m (d) 45 m

8. $\Delta ABC \sim \Delta PQR$. If $ar(ABC) = 2.25m^2$ $ar(PQR) = 6.25m^2, PQ = 0.5m$ then length of AB is

   (a) 30 cm (b) 0.5 m (c) 50 cm (d) 3 m

9. If figure, ABCD is a parallelogram. Find the value of X and

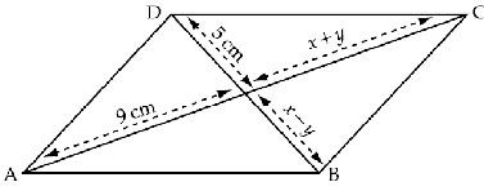
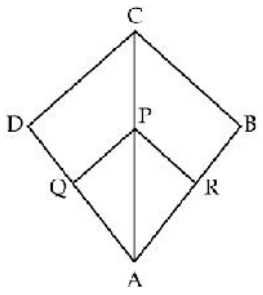
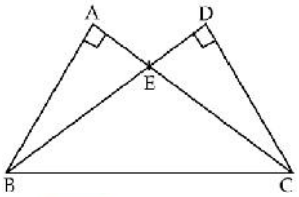


Figure 2

10. In figure PQ||CD and PR||CB. Prove that $\frac{AQ}{QD} = \frac{AR}{RB}$



11. In figure, two tangles ABC and DBC are on the same base BC in which $\angle A = \angle D =$. If CA and BD meet each other at E, show that $AE \times CE = BE \times DE$.



12. In figure ST||QR. PQ=6 cm, PR=9 cm and PS=2 cm. Find PT

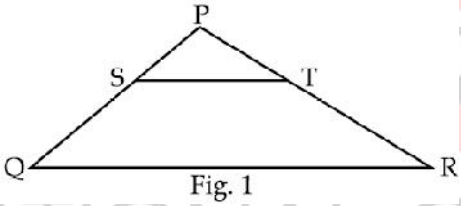


Fig. 1

13. In figure $\Delta ABE \cong \Delta ACD$. Prove that $\Delta ADE \sim \Delta ABC$

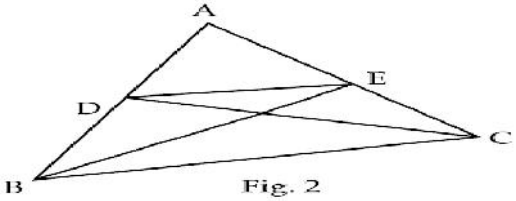
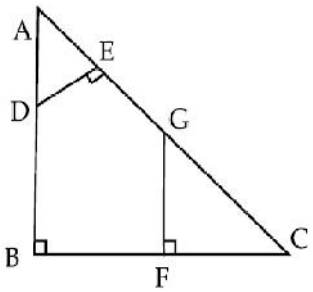


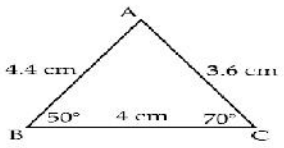
Fig. 2

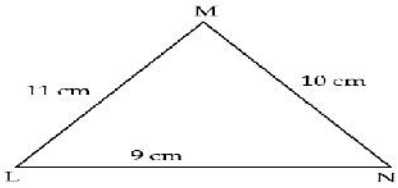
14. In figure $AB \perp BC, DE \perp AC and GF \perp BC$. Prove that $\Delta ADE \sim \Delta GCF$



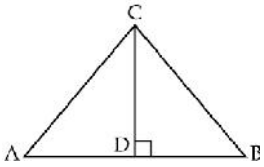
15. If the areas of two similar triangles are equal, prove that they are congr.

16. From the given figure, find $\angle MLN$

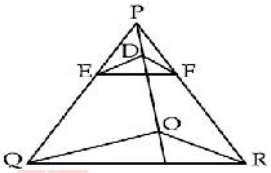




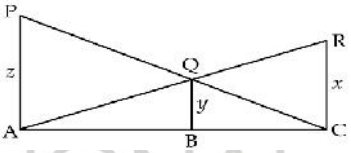
17. In figure $\angle ACB = 90^0$ and $CD \perp AB$. Prove that $\frac{BC^2}{AC^2} = \frac{BD}{AD}$.



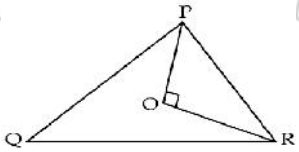
18. In figure DE||OQ and DF||OR. Show that EF||QR.



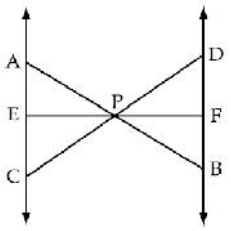
19. In figure PA, QB and RC are perpendicular to AC. Prove that $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$



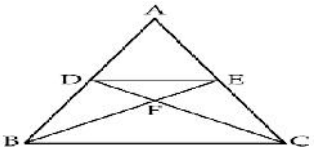
20. In figure O is a point inside ΔPQR such that $\angle POR = 90^0, OP = 6cm$ and $OR = 8$. If PQ=24cm, QR=26cm. Prove that ΔQPR is a right angled triangle.



21. In figure $l \| m$ and line segments AB, CD and EF are concurrent at P. Prove that $\frac{AE}{BF} = \frac{AC}{BD} = \frac{CE}{FD}$

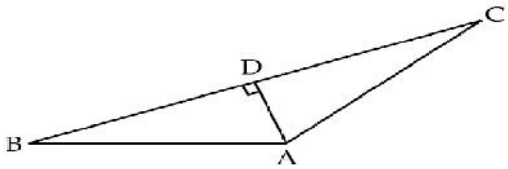


22. In figure DE||BC and AD:DB = 5:4, find $\frac{\text{area of } \Delta DFE}{\text{area of } \Delta CFB}$

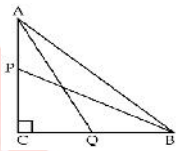


23. State and prove Pythagoras theorem.

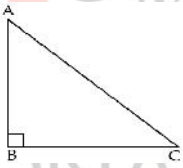
24. In figure if $AD \perp BC$, then prove that $AB^2 + CD^2 = AC^2 + BD^2$.



25. In figure, P and Q are the midpoints of the sides CA and CB respectively of ΔABC right angled at C. Prove that $4(AQ^2 + BP^2) = 5AB^2$.

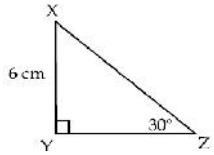


26. In figure ΔABC is right angled at B, BC = 7cm and $AC - AB = 1cm$. Find the value of $\cos A - \sin A$

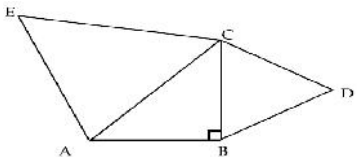


27. The diagonals of a trapezium ABCD with AB||DC intersect each other at point O. If AB = 2CD, find the ratio of the areas of triangles AOB and COD

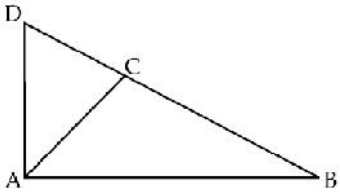
28. In figure XYZ, is triangle right angled at Y, XY = 6 cm, $\angle XZY = 30^0$. Find the length of YZ and ZX



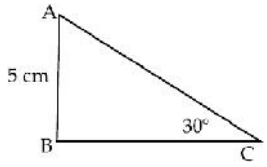
29. In figure ABC is an isosceles triangle right angled at B. Two equilateral triangles are constructed with side BC and AC. Prove that $ar\Delta BCD = \frac{1}{2} ar\Delta ACE$



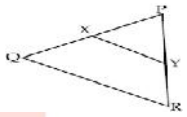
30. In figure ABD is a triangle in which $\angle DAB = 90^0$ and $AC \perp BD$. Prove that $AB^2 = BC \times BD$.



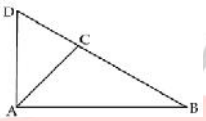
31. In figure ABC is a triangle right angled at B, AB = 5cm, $\angle ACB = 30^0$. Find the length of BC and AC



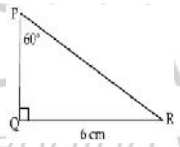
32. In figure $XY \| QR, \frac{PQ}{XQ} = \frac{7}{3}$ and PR = 6.3 cm. Find YR



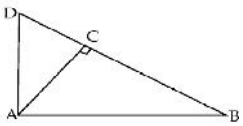
33. In figure ABD is a triangle in which $\angle DAB = 90^0$ and $AC \perp BD$. Prove that $AC^2 = BC \times DC$



34. In figure ΔPQR, right angled at Q, QR = 6 cm, $\angle QPR = 60^0$. Find the length of PQ and PR.

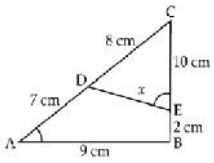


35. In figure ABD is a triangle in which $\angle DAB = 90^0$ and $AC \perp BD$. Prove that $AD^2 - BD \times CD$.



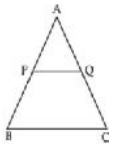
36. In triangle ABC, P is the midpoint BC and Q is the midpoint of AP. If BQ is produced to meet AC and R, prove that $RA = \frac{1}{3}AC$

37. In figure $\angle CED = \angle CAB$ show that $\Delta CED \sim \Delta CAB$. Also find the value of x.



38. ABCD is a rectangle, points M and N are on BD such that $AM \perp BD$ and $CN \perp BD$ prove that $BM^2 + BN^2 = DM^2 + DN^2$

39. In the given figure triangle ABC has PQ||BC. If $\frac{AP}{PB} = \frac{1}{2}$, find the value of $\frac{ar.\Delta APQ}{ar.\text{trepezium } PBCQ}$



40. If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, prove that the other two sides are divided in the same ratio
41. Prove that in a triangle if the square of one side is equal to the sum of the squares of the other two side then the angle opposite to the first side is a right angle.
42. In a triangle, if square of one side is equal to the sum of the squares of the other two sides, then the angle opposite the first side is a right angle. Prove this statement.

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