# CHAPTER : TRIANGLE TEST PAPER

Section A - 1 marks each

Q1. If in two triangles ABC and PQR, AB/ QR =BC/ PR= CA/ PQ , then

(A) $\Delta PQR \sim \Delta CAB$ (B) $\Delta PQR \sim \Delta ABC$ (C) $\Delta CBA \sim \Delta PQR$ (D) $\Delta BCA \sim \Delta PQR$

Q2. In $\Delta ABC$, DE $\parallel$ BC intersecting AB at D and AC at E, AD = 1cm, DB = 3cm, AE = 1.5cm, AC =?

(A) 6 cm (B) 10 cm (C) 8 cm (D) None of these

Q3. In $\Delta ABC$, D is a point on AB and E is a point on AC, DE is joined. AD = 2, DB = 3, AE = 3 cm, EC = 4.5. Is DE $\parallel$ BC?

Q4. The lengths of the diagonals of a rhombus are 16 cm and 12 cm. Then, the length of the side of the rhombus is

(A) 9 cm (B) 10 cm (C) 8 cm (D) 20 cm

Q5. In triangles ABC and DEF, $\angle B = \angle E$, $\angle F = \angle C$ and AB = 3 DE. Then, the two triangles are

(A) congruent but not similar (B) similar but not congruent

(C) neither congruent nor similar (D) congruent as well as similar

Q.6 The perimeters of two similar triangles ABC and PQR are respectively 36cm and 48cm. If PQ = 12cm, then AB =

(a) 16cm (b) 20cm (c) 25cm (d) 15cm

Q.7 In a $\Delta ABC$ , AD is the bisector of $\angle BAC$ . If AB = 12cm, AC = 10cm and BD = 6cm, then DC =

(a) 22.6cm (b) 5cm (c) 7cm (d) 9cm

Q.8 ABC and BDE are two equilateral triangles such that D is the midpoint of BC. Ratio of the areas of triangles ABC and BDE is

(a) 2:1 (b) 1:2 (c) 4:1 (d) 1:4

Q.9 Which False?

(a) All quadrilateral triangles are similar. (b) All circles are similar.

(c ) All isosceles triangles are similar. (d) All 30° . 60° . 90° triangles are similar.

Q.10 Two isosceles triangles have equal vertical angles and their areas are in the ratio16 :25. Then the ratios of their corresponding heights are

(a) 16 :25 (b) 256 : 625 (c) 4 : 5 (d) 3 : 5

Q.11 If $\Delta ABC \sim \Delta EDF$ and $\Delta ABC$ is not similar to $\Delta DEF$ , then which of the following is not true?

(a) BC.EF=AC.FD (b) AB.EF=AC.DE (c) BC.DE=AB.EF (d) BC.DE=AB.FD

Q.12 Sides of two similar triangles are in the ratio of 4 : 9. Areas of these triangles are in the ratio.

(a) 2 :3 (b) 4 :9 (c) 81 :16 (d) 16 : 81

Q.13 If $\Delta$ ABC , and $\Delta$DEF are similar triangles such that $\angle$430 and $\angle$870 then $\angle$C =

(a) 500 (b) 600 (c) 700 (d) None of these

Q.14 Two triangles are similar but not congruent and the lengths of the sides of the first are 6cm, 11cm and 12cm. The ratio of corresponding sides of first and second triangle is 1 : 2. What is the perimeter of the second triangle:

(a) 29cm (b) 53cm (c) 58cm (d) 56cm

Q.15 For the above triangle, if AD=z, DB = z-2, AE = z+2 and EC=z-1, then z=

(a) 2 (b) 3 (c) 4 (d) 1

Q.16 In an isosceles triangle ABC, If AC = BC and AB2 = 2 AC2, then $\angle$C=

(a) 450 (b) 600 (c) 900 (d) 300

Q.17 In triangles ABC and DEF, $\angle B = \angle E, \angle F = \angle C$andAB = 3DE . Then , two triangles are

(a) congruent but not similar. (b) similar but not congruent.

(c ) neither congruent nor similar. (d) congruent as well as similar.

Section B 2 marks each

Q18. D is a point on side QR of $\Delta$PQR such that PD $\perp$ QR. Will it be correct to say that $\Delta$PQD ~ $\Delta$RPD? Why?

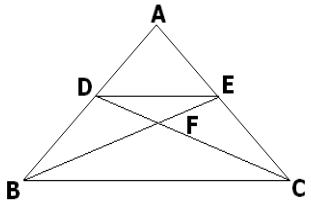
Q19. In the $\Delta$ABC, $\angle ACB = 90^\circ$ and CD $\parallel$ AB, D lies on AB. Prove that $CD^2 = BD \times AD$

Q20. In a triangle PQR, N is a point on PR such that Q N $\perp$ PR . If PN. NR = $QN^2$, prove that $\angle$PQR = 90°

Q.21 In an isosceles triangle ABC if AC = BC and AB2 = 2AC2, Prove that $\angle$C is a right angle

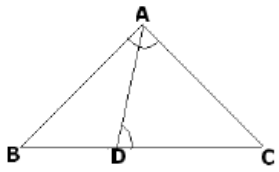
Q.22 Diagonals AC and BD of a trapezium ABCD with AB||DC intersect each other at the point O. Using a similarity criterion for two triangles, show that OA/OC = OB/OD

Q.23. Diagonals of a trapezium ABCD with AB||DC intersect each other at the point O. If AB = 2DC, find ratio of the areas of $\Delta$AOB and $\Delta$COD

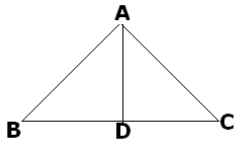


Q.24 PQR is a right triangle right angled at P and M is a point on QR such that PM ⊥ QR. Show that PM2 = QM. MR.

Q.25. D is a point on the side BC of a triangle ABC such that ∠ADC = ∠BAC . Show that $CA^2$=CB.CD.




Q.26 in a equilateral triangle ABC, prove that three times the square of one side is equal to four times the square of one of its altitudes.




**Section C 3 marks each**

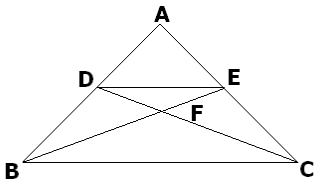
Q27. O is any point inside a rectangle ABCD. Prove that $OB^2 + OD^2 = OA^2 + OC^2$.

Q10. In ÄPQR, PD ⊥ QR such that D lies on QR . If PQ = *a*, PR = *b*, QD = *c* and DR = *d*, prove that (*a* + *b*) (*a* - *b*) = (*c* + *d*) (*c* -*d*).

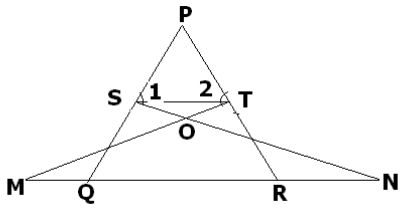
Q28. Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides. Apply the above theorem on the following: ABC is a triangle and PQ is a straight line meeting AB in P and AC in Q. If AP = 1 cm, PB = 4cm, AQ = 1.5 cm, QC = 6 cm, Prove that the area of Δ APQ is one-sixteenth of the area of ΔABC.

Q29. In Fig. 6.21, PA, QB, RC and SD are all perpendiculars to a line *l*, AB = 6 cm, BC = 9 cm, CD = 12 cm and SP = 36 cm. Find PQ, QR and RS.

Q.30 In the given figure DE||BC and AC:AB = 5:4. Find area (Δ DFE)/ area (Δ CFB)



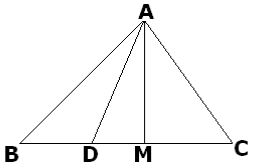

Q.31 In the given figure, if ∠1 = ∠2 and ΔNSQ ≅ ΔMTR then prove that ΔPTS ~ ΔPRQ.



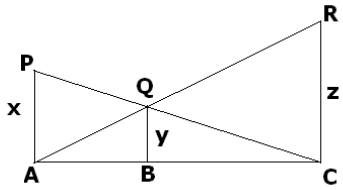

Q.32 ABC is a right triangle right angled at C. Let BC = a, CA = b AB = c and let p be the length of perpendicular from C on AB, prove that

(i) cp = ab (ii) $1/p^2 = 1/a^2 + 1/b^2$

Q.33 In a equilateral triangle ABC, D is a point on side BC such that BD =1/3 BC. Prove that $9AD^2 = 7AB^2$.




Q.34. In the given figure PA, QB and RC are each perpendicular to AC. Prove that 1/x + 1/y = 1/z




Q.34 Prove that the equilateral triangles described on two sides of a right angled triangle are together equal to the equilateral triangle on the hypotenuse in terms of their areas.