CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-X

Subject: MATHEMATICS

Chapter Name : Triangles (Chap : 6)

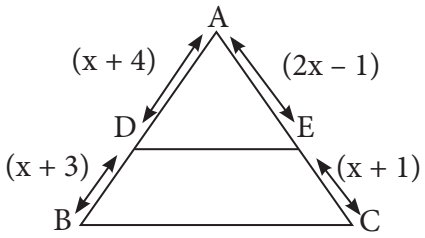
Total : 8 Marks (expected) [MCQ(1)-1 Mark, SA-I(1)-2 Marks, LA(1)-5 Marks]

Level - 2 (Higher Order)

MCQ Type :

1. In the given figure, if DE || BC, then the value of x is

Ⓐ $\sqrt{5}$ Ⓑ $\sqrt{6}$ Ⓒ $\sqrt{3}$ Ⓓ $\sqrt{7}$



Hints : Use Basic Proportionality Theorem (Thales Theorem)

2. The perimeters of two similar triangles ABC and PQR are 60 cm and 36 cm respectively. If PQ = 9 cm, then AB equals

Ⓐ 6 cm Ⓑ 10 cm Ⓒ 15 cm Ⓓ 24 cm

Hints : AB : PQ = perimeter of triangle ABC : perimeter of triangle PQR.

3. $\Delta ABC \sim \Delta DEF$. If AB = 4 cm, BC = 3.5 cm, CA = 2.5 cm and DF = 7.5 cm, then the perimeter of ΔDEF is

Ⓐ 10 cm Ⓑ 14 cm Ⓒ 30 cm Ⓓ 25 cm

Hints : AC : DF = perimeter of triangle ABC : perimeter of triangle DEF.

4. ABCD is a trapezium in which AB || DC and P, Q are points on AD and BC respectively such that PQ || DC. If PD = 18 cm, BQ = 35 cm and QC = 15 cm, find AD.

Ⓐ 55 cm Ⓑ 57 cm Ⓒ 60 cm Ⓓ 62 cm

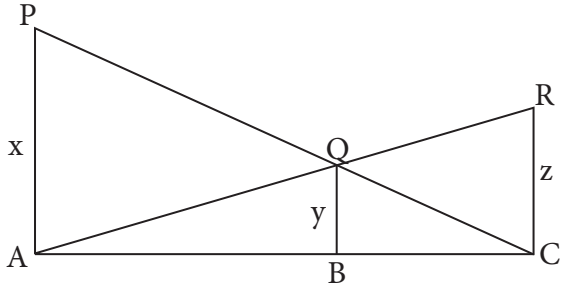
Hints : Join BD which cuts PQ at O. Then apply BP Theorem.

5. If ABCD is parallelogram, P is a point on side BC and DP when produced meets AB produced at L, then select the correct option

Ⓐ $\frac{DP}{BL} = \frac{DC}{PL}$ Ⓑ $\frac{DP}{LP} = \frac{DC}{LB}$ Ⓒ $\frac{DP}{PL} = \frac{BL}{DC}$ Ⓓ $\frac{DP}{PL} = \frac{AB}{DC}$

Hints : Triangle DPC is similar to triangle LPB.

6. In the given figure, PA, QB and RC are each perpendicular to AC. If x = 8 cm and z = 6 cm, then y is equal to :

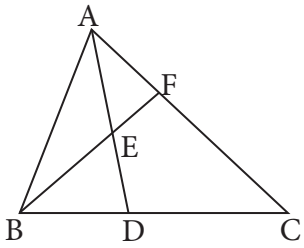


Ⓐ $\frac{56}{7}$cm Ⓑ $\frac{7}{56}$cm Ⓒ $\frac{25}{7}$cm Ⓓ $\frac{24}{7}$cm

Hints : $\frac{y}{x} = \frac{BC}{AC}$ and $\frac{y}{z} = \frac{AB}{AC}$

SA-I Type

7. In the figure, AD is median of ΔABC and E is the mid-point of AD. If BE is produced to meet AC at F, then prove that AF = $\frac{1}{3}$ AC.



Hints : Draw DG parallel o BF which cuts AC at G. Apply BP theorem on triangle BFC and triangle ADG.

8. M and N are points on the sides PQ and PR respectively of a ΔPQR. State whether MN || QR if PM = 4 cm, QM = 4.5 cm, PN = 4 cm, NR = 4.5 cm.

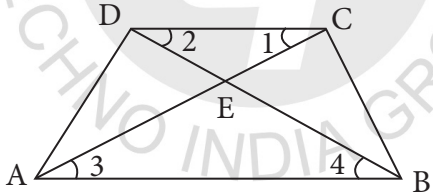
Hints : Apply converse of BP theorem.

9. In the given figure, ABCD is a trapezium with AB || DC, E and F are the points on non-parallel sides AD and BC respectively such that EF || AB. Prove that $\frac{AE}{ED} = \frac{BF}{FC}$.

Hints : Join AC which cuts EF at O. Then apply BP Theorem.

10. In given figure ∠1 = ∠3, ∠2 = ∠4

DE = 4; CE = x + 1, AE = 2x + 4; BE = 4x – 2, find x.



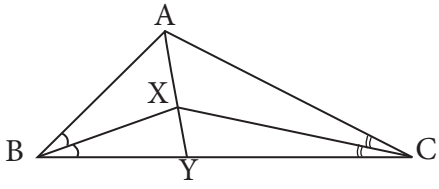
Hints : ΔABE ~ ΔCDE (A – A)

11. Any point X is taken on the side BC of a triangle ABC and XM, XN are drawn parallel to BA, CA meeting CA, BA at M and N respectively. MN meets CB produced in T.

Prove that : $TX^2 = TB \times TC$.

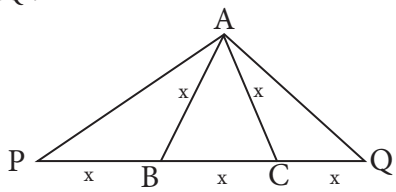
Hints : $\frac{TN}{TM} = \frac{TB}{TX}$ and $\frac{TN}{TM} = \frac{TX}{TC}$

12. Bisector of ∠B and ∠C in Δ ABC meet each other at X. Line AX cuts the side BC in Y. Prove that $\frac{AX}{XY} = \frac{AB + AC}{BC}$



Hints : $\frac{AB}{BY} = \frac{AX}{Xy} = \frac{AC}{CY}$

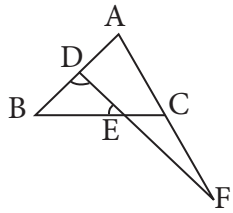
13. In the given figure ABC is an equilateral Triangle, whose each side measures x units. P and Q are two points on BC produced such that PB = BC = CQ .



Prove that : (a) $\frac{PQ}{PA} = \frac{PQ}{PB}$ (b) $PA^2 = 3x^2$

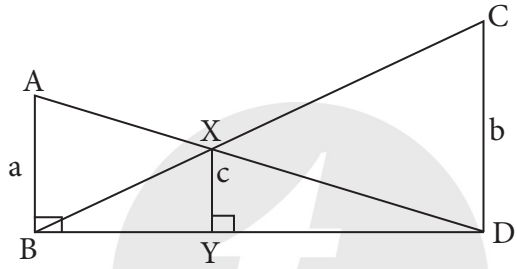
Hints : **$\Delta APB \sim \Delta QPA$ (A – A)**

14. In the figure, $\angle BED = \angle BDE$ and E is the middle point of BC. Prove that $\frac{AF}{CF} = \frac{AD}{BE}$.



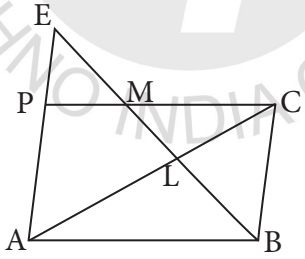
Hints : Draw CG parallel to AB which cuts DF at G. $\Delta BED \sim \Delta CEG$ (A – A), $\Delta ADF \sim \Delta CGF$ (A – A)

15. In the figure, $\angle ABD = \angle XYD = \angle CDB = 90°$, AB = a, XY = c and CD = b, then prove that c (a + b) = ab.



Hints : $\frac{c}{a} = \frac{YD}{BD}$ and $\frac{c}{b} = \frac{BY}{BD}$

16. In the parallelogram ABCD, middle point of CD is M. A line segment BM is drawn which cuts AC at L and meets AD extended at E. Prove that EL = 2BL.



Hints : DE = AD, $\Delta AEL \sim \Delta CBL$ (A – A)

17. Prove that if two sides and a median bisecting the third side of a triangle are respectively proportional to the corresponding sides and the median of another triangle, then the two triangles are similar.

Hints : NCERT Page No. 97 Q.14.

18. A quadrilateral OABC in which OA = OC. The bisector of $\angle AOB$ meets AC at D and AB at F and the bisector of $\angle COB$ meets AC at E and BC at G. Prove that $\Delta ODE - \sim \Delta OFG$.

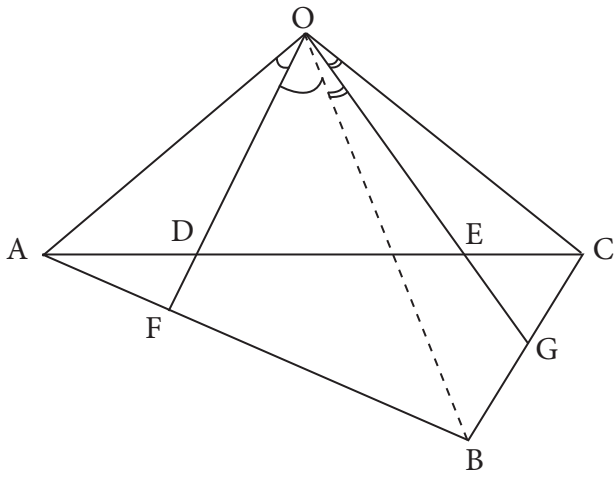
Hints : OA : OB = AF : BF

OC : OB = CG : BG

AF : BF = CG : BG

Apply converse of BP theorem.

$\Delta ODE \sim \Delta OFG$ (A – A).



ANSWER

1. Ⓓ
2. Ⓒ
3. Ⓒ
4. Ⓒ
5. Ⓑ
6. Ⓓ
8. yes, MN || QR
10. 3