

Date: 12-Jun-2026

Time: 60min

Similarity

Marks: 20

Q.1 Attempt the following

1. $\Delta PQR \sim \Delta STU$ and $A(\Delta PQR) : A(\Delta STU) = 64 : 81$, then what is the ratio of corresponding sides? (1)

(A) 8 : 9 (B) 64 : 81
(C) 9 : 8 (D) 16 : 27

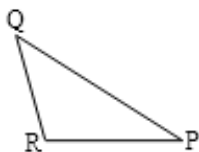
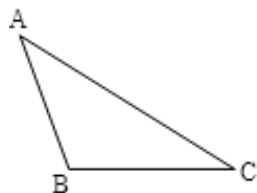
2. If $\Delta ABC \sim \Delta DEF$ and $\angle A = 48^\circ$, then $\angle D = \underline{\hspace{2cm}}$. (1)

(A) 48° (B) 83°
(C) 49° (D) 132°

3. If $\Delta ABC \sim \Delta PQR$ and $4A(\Delta ABC) = 25A(\Delta PQR)$, then $AB : PQ = ?$ (1)

(A) 4 : 25 (B) 2 : 5
(C) 5 : 2 (D) 25 : 4

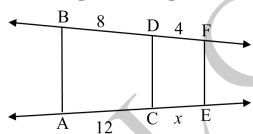
4. In ΔABC and ΔPQR , in a one to one correspondence $\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}$, then (1)



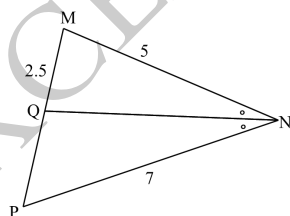
(A) $\Delta PQR \sim \Delta ABC$ (B) $\Delta PQR \sim \Delta CAB$
(C) $\Delta CBA \sim \Delta PQR$ (D) $\Delta BCA \sim \Delta PQR$

Q.2 Attempt the following (Any 3)

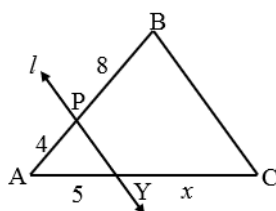
1. In the given figure, if $AB \parallel CD \parallel FE$, then find x and AE . (2)



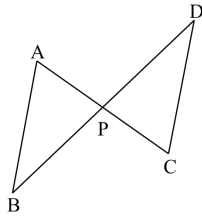
2. In ΔMNP , NQ is a bisector of $\angle N$. If $MN = 5$, $PN = 7$, $MQ = 2.5$, then find QP . (2)



3. In the given figure, line $l \parallel$ side BC , $AP = 4$, $PB = 8$, $AY = 5$ and $YC = x$. Find x . (2)



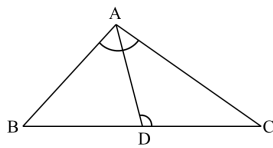
4. In the given figure, seg AC and seg BD intersect each other in point P and $\frac{AP}{CP} = \frac{BP}{DP}$. Prove that, $\triangle ABP \sim \triangle CDP$. (2)



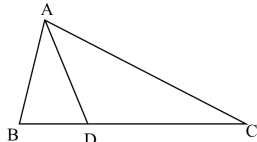
Q.3 Attempt the following (Any 2)

Answer the following in detail.

1. In the given figure, in $\triangle ABC$, point D is on side BC such that, $\angle BAC = \angle ADC$. Prove that, $CA^2 = CB \times CD$. (3)



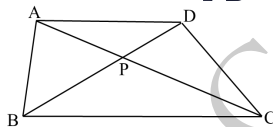
2. In $\triangle ABC$, B–D–C and $BD = 7$, $BC = 20$, then find following ratios. (3)



- $\frac{A(\triangle ABD)}{A(\triangle ADC)}$
- $\frac{A(\triangle ABD)}{A(\triangle ABC)}$
- $\frac{A(\triangle ADC)}{A(\triangle ABC)}$

3. In $\square ABCD$, seg $AD \parallel$ seg BC . Diagonal AC and diagonal BD intersect each other in point P. (3)

Then show that $\frac{AP}{PD} = \frac{PC}{BP}$.



Q.4 Attempt the following (Any 1)

1. In $\triangle PQR$, bisectors of $\angle Q$ and $\angle R$ intersect in point X. Line PX intersects side QR in point Y, (4)

then prove that: $\frac{PQ + PR}{QR} = \frac{PX}{XY}$.

2. $\square ABCD$ is a parallelogram. Point P is the midpoint of side CD. Seg BP intersects diagonal AC at point X, then prove that: $3AX = 2AC$ (4)

