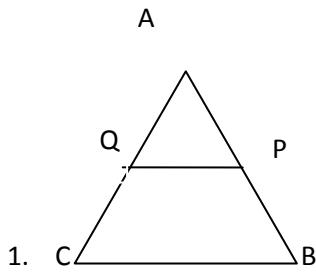


STD-X

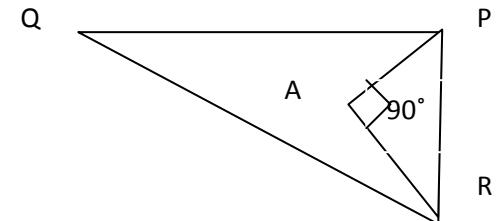
ASSIGNMENT- 5

SIMILAR TRIANGLES

ONE MARK QUESTIONS



1. In fig. P and Q are points on the sides AB and AC respectively of ABC such that $AP=3.5\text{cm}$, $PB=7\text{cm}$, $AQ=3\text{cm}$, $QC=6\text{cm}$. If $PQ=4.5\text{cm}$. Find BC.

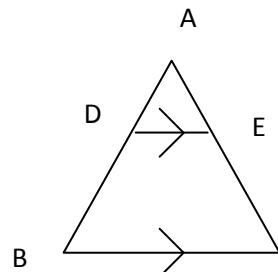


2. In the fig. $PQ=2\text{cm}$, $QR=26\text{cm}$, $\angle PAR=90^\circ$, $PA=6\text{cm}$ and $AR=8\text{cm}$. Find $\angle QPR$.

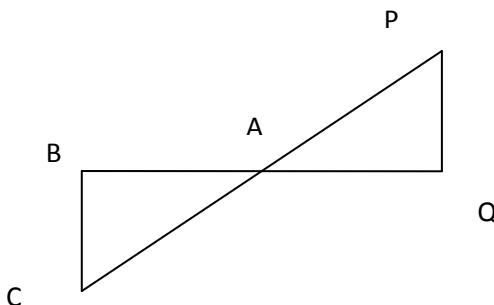
3. In the given fig. DE is parallel to BC , $AD=1\text{cm}$, $BD=2\text{cm}$.

What is ar

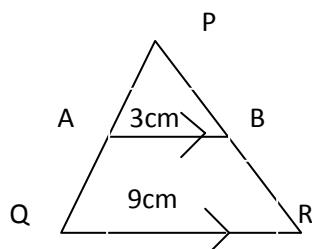
ΔABC :ar ΔADE ?



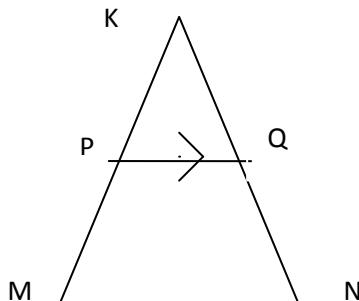
4. In the fig. $\Delta ACB \sim \Delta APQ$, If $BC=8\text{cm}$, $PQ=4\text{cm}$, $BA=6.5\text{cm}$, $AP=2.8\text{cm}$. Find CA and AQ .



5. In fig. AB is parallel to QR , find PB .
 $PR=6\text{cm}$, $AB=4\text{cm}$, $QR=9\text{cm}$.



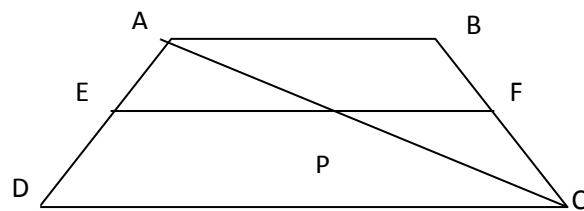
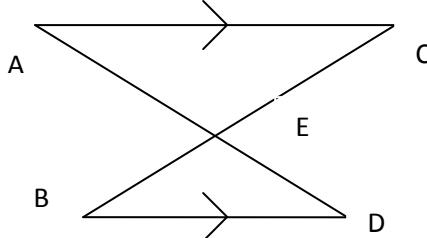
6. In fig. PQ is parallel to MN . If $KP/PM=4/13$ and $KN=20.4\text{cm}$. Find KQ .



7. The perimeter of two similar triangles ABC and PQR are respectively 36cm and 24cm . If $PQ=10\text{cm}$. Find AB .
8. If $\Delta ABC \sim \Delta DEF$ such that area of ΔABC is 9cm^2 and the area of ΔDEF is 16cm^2 and $BC=2.1\text{cm}$. Find the length of EF .
9. If $\Delta ABC \sim \Delta DEF$, $BC=3\text{cm}$, $EF=4\text{cm}$ and area of $\Delta ABC=54\text{cm}^2$. Find the area of ΔDEF .
10. Two isosceles triangles have equal vertical angles and their areas are in the ratio $9:16$. Write the ratio of their corresponding heights.

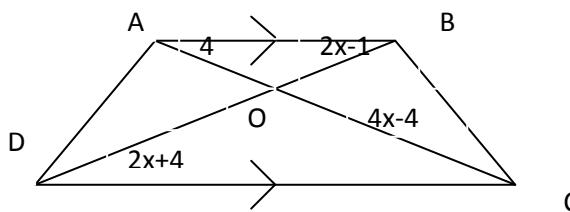
TWO MARK QUESTION

1. In the given fig. AC is parallel to BD, is $AE/CE = DE/BE$?

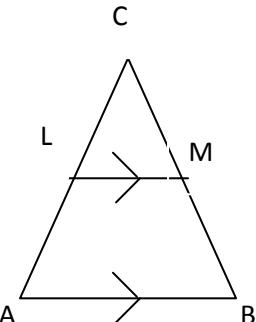
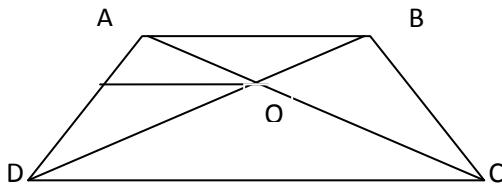


2. If ABCD is a trapezium with $AB \parallel BD \parallel EF$, Prove that $AE/ED = BF/FC$.

3. In the fig., $AB \parallel CD$, FIND x . (Hint: Prove that $\triangle AOB \sim \triangle COD$).



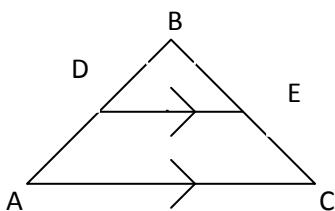
4. In the fig. $AO/OC = OB/OD = 1/2$, $AB = 4\text{cm}$. Find DC . (Hint: $OP \parallel CD \parallel AB$).



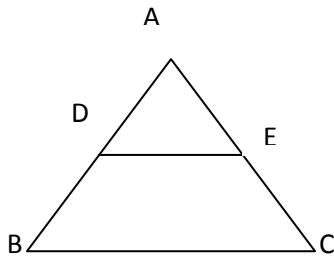
5. In the fig. $LM \parallel AB$, If $AL = x - 3$, $AC = 2x$, $BM = x - 2$ and $BC = 2x + 3$. Find x .

6. E and F are points on the sides PQ and PR respectively of a $\triangle PQR$. State whether $EF \parallel QR$ if $PE = 3.9\text{cm}$, $EQ = 3\text{cm}$, $PF = 3.6\text{cm}$ and $FR = 2.4\text{cm}$.

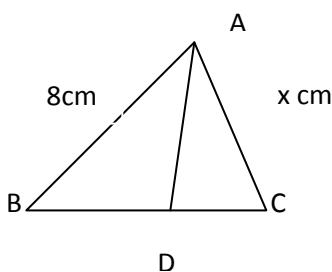
7. In $\triangle ABC$, $DE \parallel AC$, $AD : BD = 3 : 2$, find the ratios of areas of $\triangle ABC$ and $\triangle BDE$.



8. In $\triangle ABC$, $DE \parallel BC$, $AD/BD = 3/5$, if $AC = 5.6\text{cm}$, find AE .



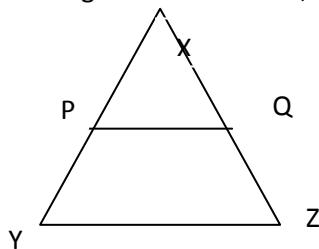
9. In the fig. AD is the bisector of $\angle BAC$, $AB = 8\text{cm}$, $AC = x\text{ cm}$, $BD = 5\text{cm}$ and $CD = 3\text{cm}$. Find x (Hint: $AB/AC = BD/CD$ Interior angle bisector theorem).



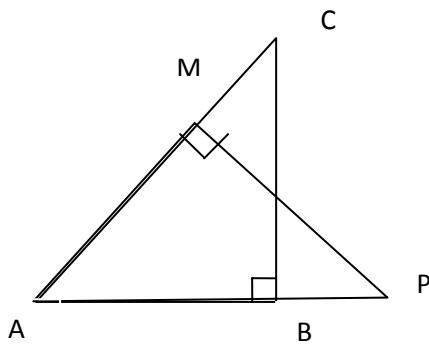
10. In $\triangle ABC$, D is the midpoint of AB , $DE \parallel BC$ meets AC at E , prove that $AE = 1/2AC$.

THREE MARKS QUESTIONS:

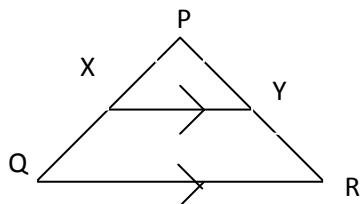
- Two triangles ABC and DBC are on the same base BC and on the same side of BC in which $\angle A = \angle D = 90^\circ$. If CA and BD must intersect each other at E . Show that $AE \cdot EC = BE \cdot ED$.
- Construction of similar triangles.
- In fig. $XP/PY = XQ/QZ = 3$, if the area of $\triangle XYZ$ is 32 cm^2 , then find area of quad. $PYZQ$.



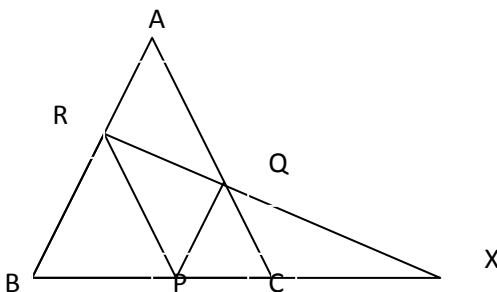
4. In the fig. $\triangle ABC$ and $\triangle AMP$ are right angled at B and M respectively. Prove that $CA \cdot MP = PA \cdot BC$.



5. O is any point inside rectangle ABCD, Prove that $OB^2 + OD^2 = OA^2 + OC^2$.
 6. ABC is a triangle in which $AB = AC$ and D is any point in BC. Prove that $AB^2 - AD^2 = BD \cdot CD$.
 7. In the fig. $XY \parallel QR$, $PQ/XQ = 7/3$ and $PR = 6.8 \text{ cm}$. Find YR.



8. In the fig. $PQ \parallel BA$, $PR \parallel CA$ and $PX = 12\text{cm}$. Find $BX \cdot CX$



9. ABCD is a parallelogram. E is the midpoint of CD. The line segment joining B and E intersect AC in L and AD produced in M. Prove that $LM = 2BL$.
 10. In rhombus ABCD, each side is equal to x units. Prove that $AC^2 + BD^2 = 4x^2$.

Four MARKS QUESTIONS :

1. Basic proportionality theorem.
2. Area of two similar triangles.
3. Pythagoras theorem
4. Converse of Pythagoras theorem.

5. A ladder reaches a window which is 12m above the ground on one side of the street, keeping its foot at the same point; the ladder is turned to the other side of the street to reach a window 9m high. Find the width of the street if the length of the ladder is 15m.
6. If ΔABC is an equilateral triangle with $AB+BC$. Prove $AD^2=DC^2$.
7. Using the converse of Pythagoras theorem find the length of an altitude of an equilateral triangle of side 2cm.
8. Prove that the area of an equilateral triangle described on one side of a square is equal to half the area of the equilateral triangle described on one of its diagonals.

ANSWERS:

(1 MARKS)(1)13.5cm, (2) 90° , (3)9:1, (4) $AC=5.6\text{cm}$, $AQ=3.25\text{cm}$, (5)2cm, (6) $KQ=4.8\text{cm}$, (8)2.8cm, (9) 96cm^2 , (10)3:4

(2MARKS)(3) $x=3$ or $x= -1/2$, (4) $DC=8\text{cm}$, (7)25:9, (8) $AE=2.1\text{cm}$, (9)4.8cm

(3 MARKS)(13) 14cm^2 , (7)20.4cm, 8)144

(4MARKS)(5b) 21cm, (7b) $\sqrt{3}\text{cm}$