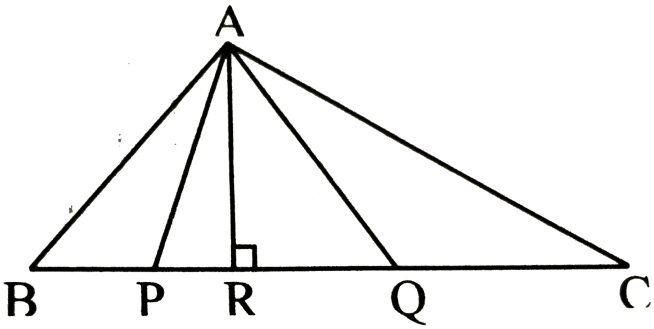
MATHS

BOOKS - TARGET MATHS (HINGLISH)

SIMILARITY

Fill In The Properly State The Reason

1. Find $\frac{A(\Delta ABC)}{A(\Delta APQ)}$.



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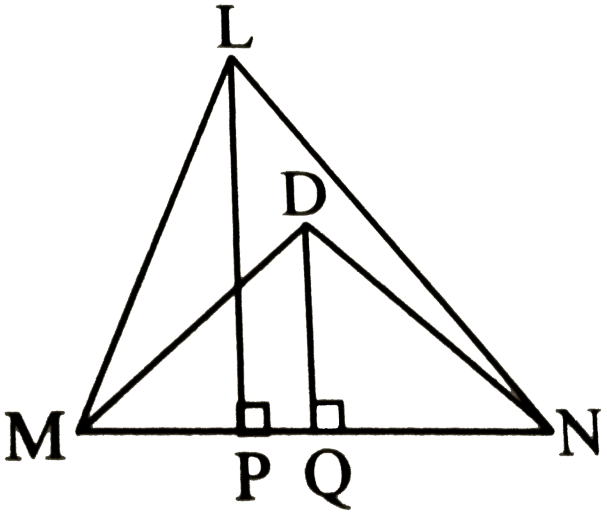
2. Find $\frac{A(\Delta LMN)}{A(\Delta DMN)}$



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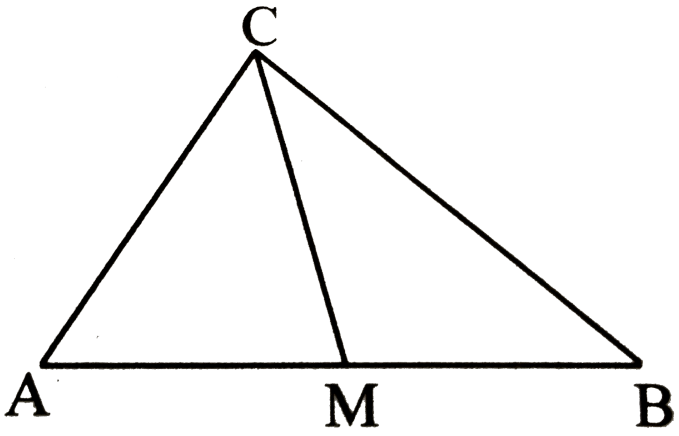
3. In the adjoining figure, M is the midpoint of seg AB and seg CM is a median of ΔABC. Find $\frac{A(\Delta AMC)}{A(\Delta BMC)}$.



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Textual Activity

1. Draw a ΔABC.

1.Bisect $\angle B$ and name the point of intersection of AC and the angle bisecto as D.

2. Mesure the sides.

AB= ☐ cm , BC = ☐ cm,

AD = ☐ cm, DC = ☐ cm

3.Find rations $\frac{AB}{BC}$ and $\frac{AD}{DC}$.

4.You will find thaat both the rations are almost equal.

6.Bisect remaining angles of the triangle and find the ration as above. Verify that the rations are equal.

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2. Draw three parallel lines.

ii.Label them as l, m, n.

iii.Draw transversals t_1 and t_2.

iv. AB and BC are intercepts on transversal t_1.

v.PQ and QR are intercepts on transversal t_2.

vi.Find rations $\frac{AB}{BC}$ and $\frac{PQ}{QR}$. You will find that they are almost equal. Verify theat they are equal.

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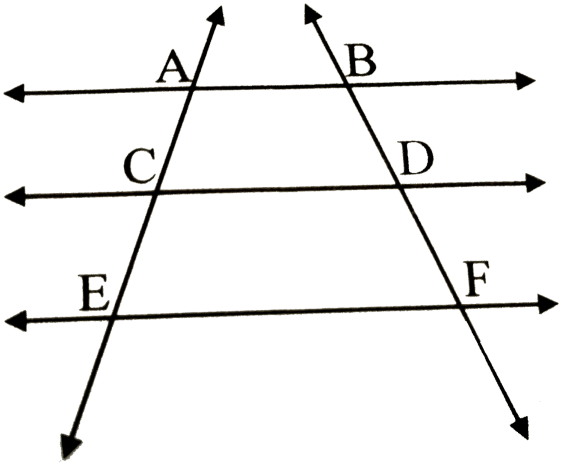
3. In the adjoining figure, $AB||CD||EF$. If AC = 5.4, CE = 9, BD = 7.5, then find DF.



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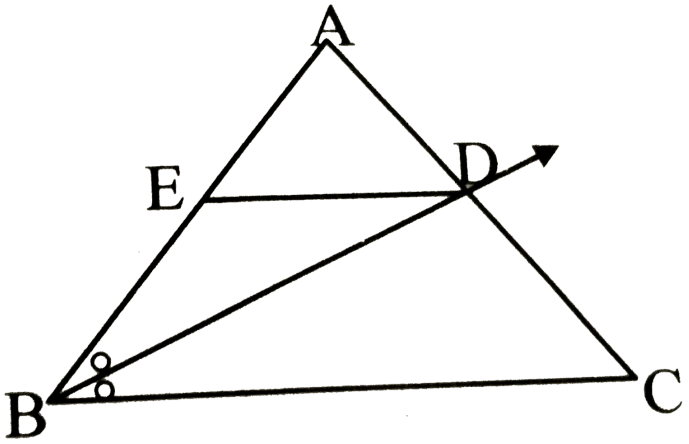
4. In ΔABC, ray BD bisects $\angle ABC$. A-D-C, side DE||side BC, A-E-B, then prove that $\frac{AB}{BC} = \frac{AE}{EB}$.



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Try This

1. Three statements are given below:

I. In a ||gm, the angle bisectors of two adjacent angles enclose a right angle.

I. The angle bisectors of a ||gm form a rectangle.

III. The triangle formed by joining the midpoints of the sides of an isosceles triangle is not necessarily an isosceles triangle.

Which is true?

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Practice Set 1 1

1. Base of a triangle is 9 and height is 5. Base of another triangle is 10 and height is 6. Find the ratio of areas of these triangles.

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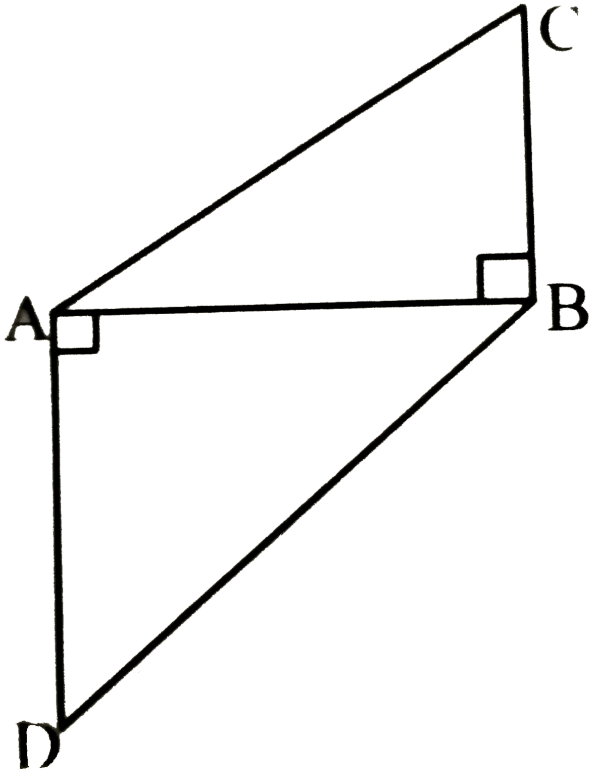
2. In the adjoining figure, $BC \perp AB, AD \perp AB, BC = 4, AD = 8,$ then find

$$\frac{A(\Delta ABC)}{A(\Delta ADB)}$$ ..



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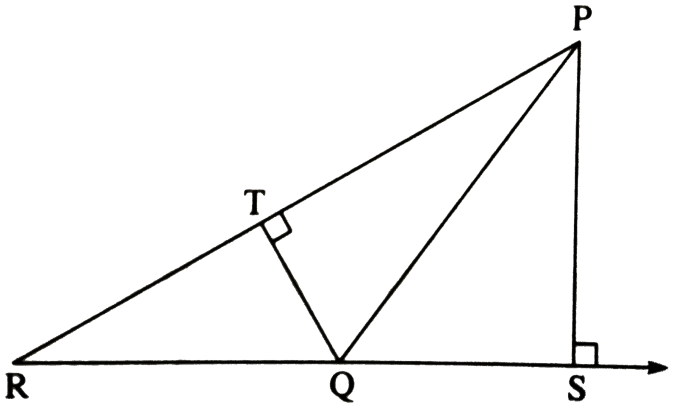
3. In the following figure set $PS \perp$ seg RQ,set $QT \perp$ set PR. If $RQ = 6$, $PS = 6$ and $PR = 12$, then find the QT.



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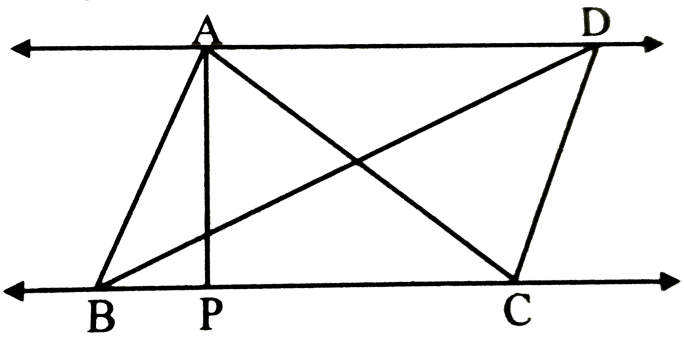
4. In the adjoining figure, $AP \perp BC$, $AD||BC$, then find $A(\Delta ABC) : A(\Delta BCD)$.



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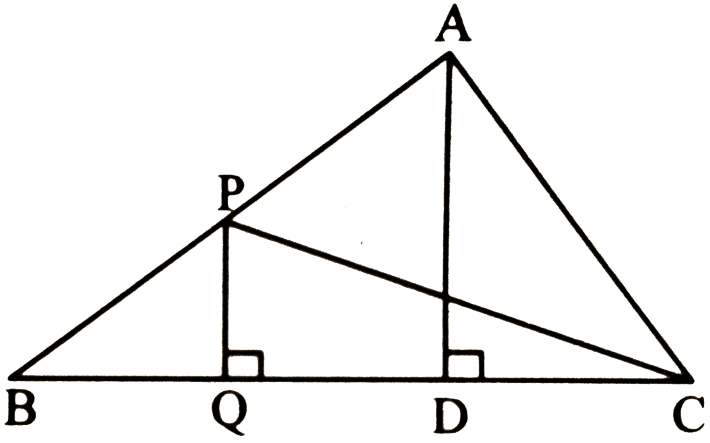
5. In the adjoining figure, $PQ \perp BC$, $AD \perp BC$, then find ratio

$$\frac{A(\Delta PQB)}{A(\Delta PBC)}.$$



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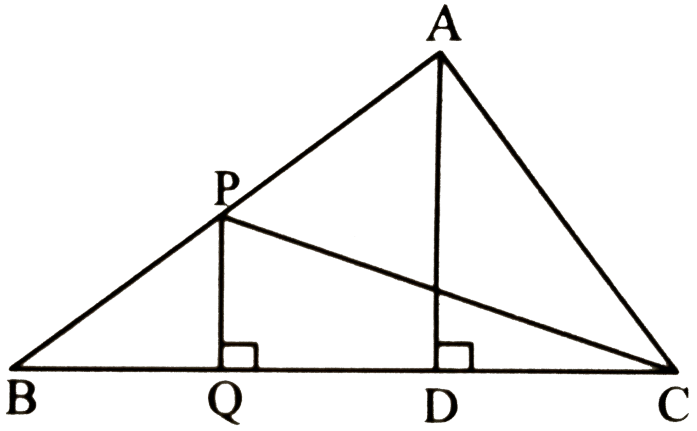
6. In the adjoining figure, $PQ \perp BC$, $AD \perp BC$, then find ratio

$$\frac{A(\Delta PBC)}{A(\Delta ABC)}.$$



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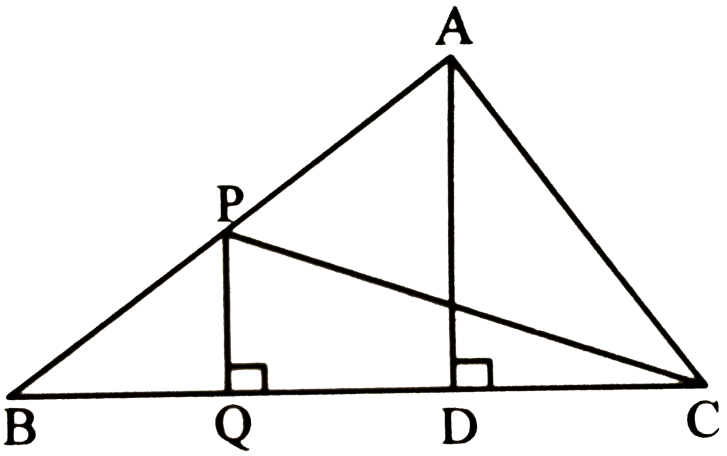
7. In the adjoining figure, $PQ \perp BC$, $AD \perp BC$, then find ratio

$$\frac{A(\Delta ABC)}{A(\Delta ADC)}.$$



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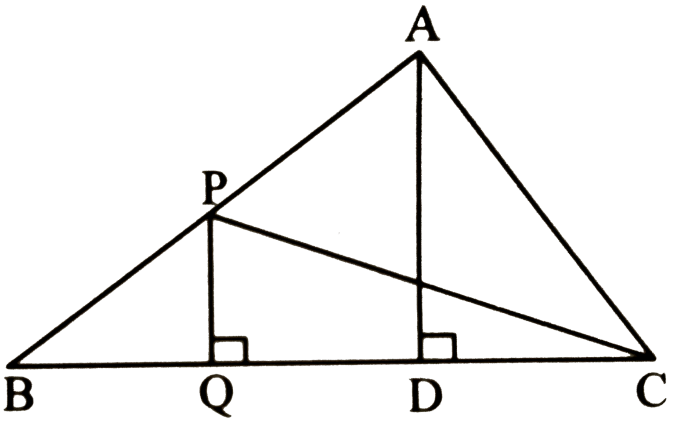
8. In the adjoining figure, $PQ \perp BC$, $AD \perp BC$, then find ratio

$\frac{A(\Delta ADC)}{A(\Delta PQC)}$



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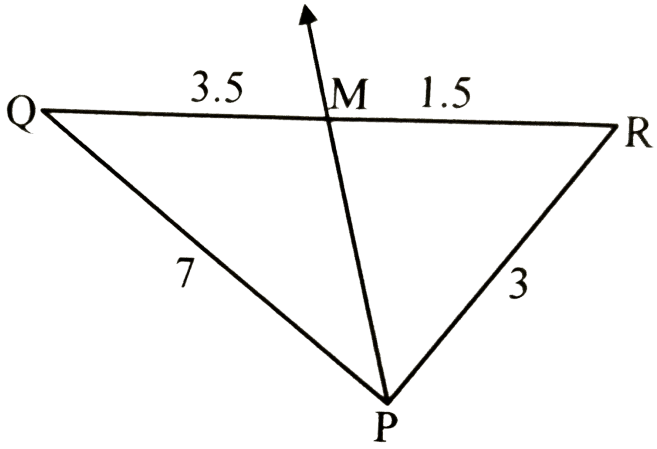
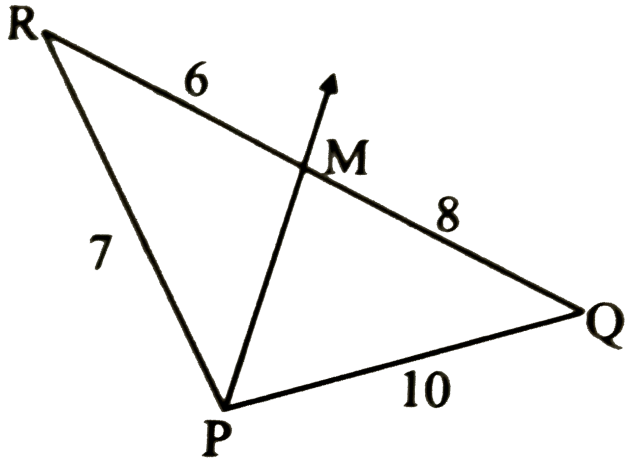
Practice Set 1 2

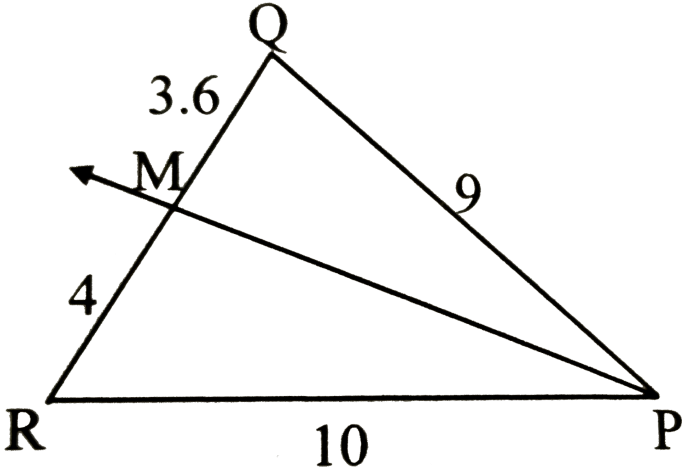
1. Given below are some triangle and lengths of line segments. Identify in which figures, ray PM is the bisector of $\angle QPR$.



ii



iii.



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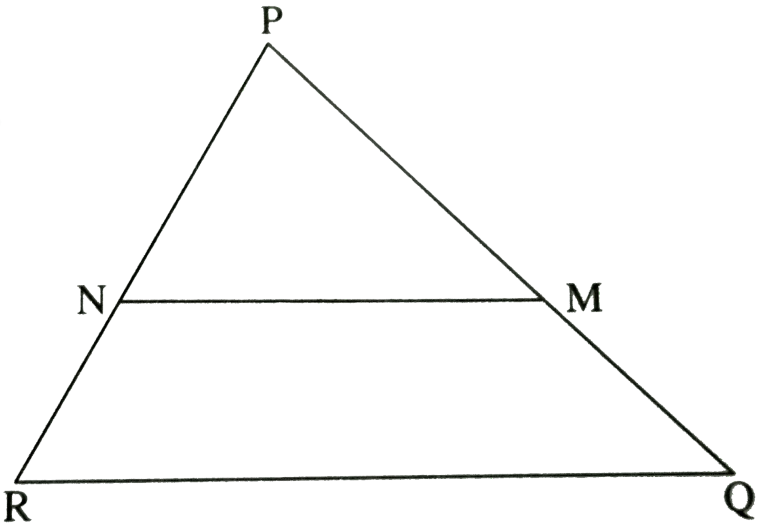
2. In $\Delta PQR, PM = 15, PQ = 25, PR = 20, NR = 8.$

State whether line NM is parallel to side RQ or not.

Given Reason.



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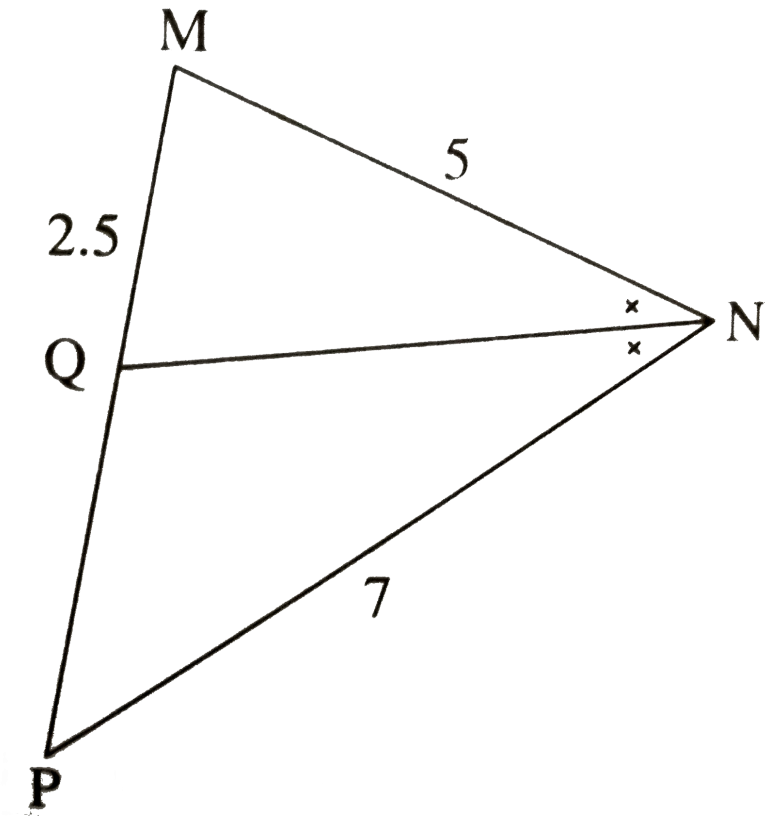
3. In $\Delta MNP, NQ$ is a bisector of $\angle N$. If $MN = 5, PN = 7, MQ = 2.5,$ the find QP.



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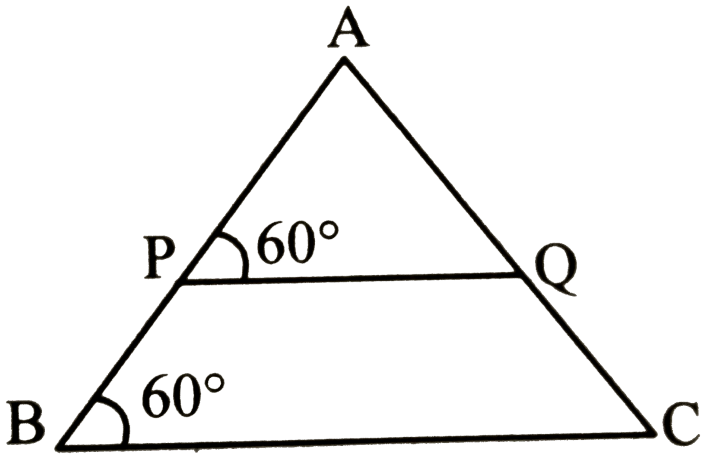
4. Measures of same angles in the figure are given. Prove that $\frac{AP}{PB} = \frac{AQ}{QC}$.



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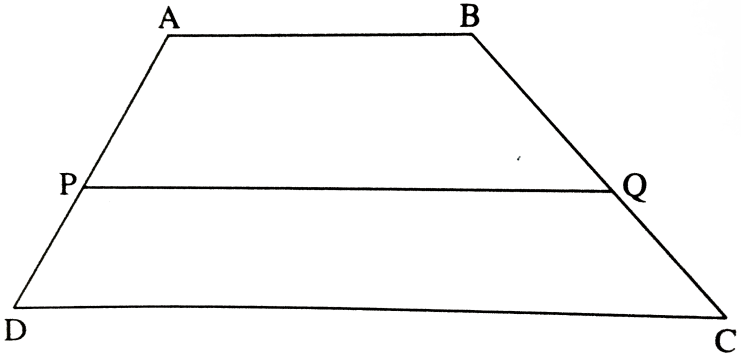
5. In trapezium ABCD side $AB \mid\mid$ side $PQ \mid\mid$ side DC, $AP = 15$, $PD = 12$, $QC = 14$, find BQ.



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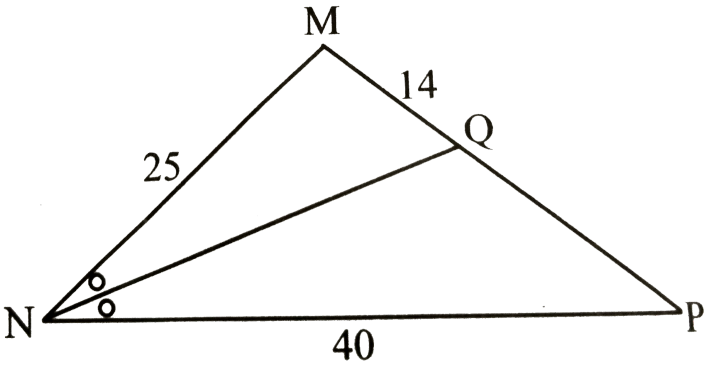
6. Find QP using given information in the figure.



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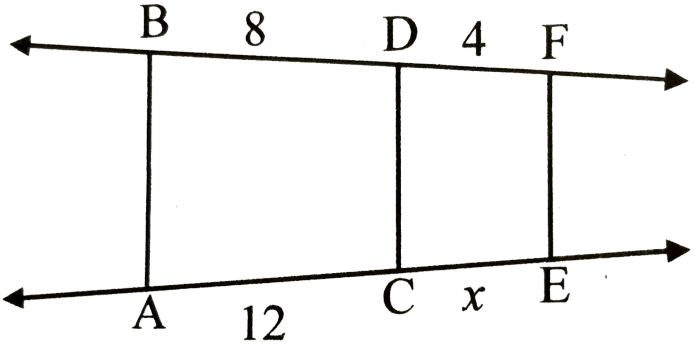
7. In the adjoining figure, if $AB||CD||FE$, then find x and AE.



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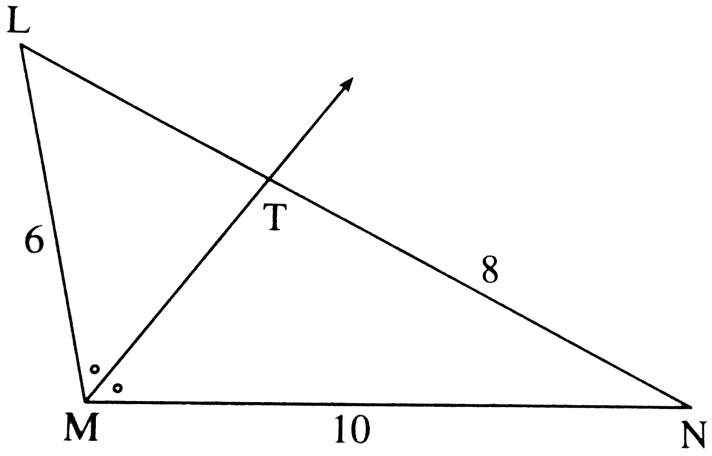
8. In ΔLMN, ray MT bisects $\angle LMN$. If $LM = 6, MN = 10. TN = 8$ then find LT.



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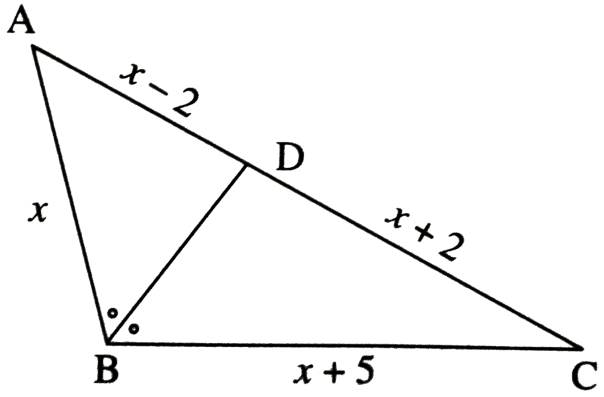
9. In ΔABC set BD bisects $\angle ABC$. If $AB - x, BC = x + 5, AD = x - 2, DC = x + 2,$ then find the value of x.



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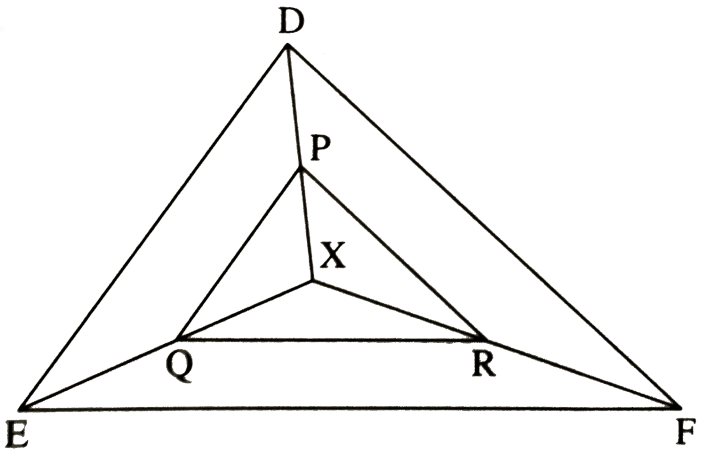
10. In the figure X is any point in the interior of triangle. Point X is joined to vertices of triangle. Seg PQ $||$ set DE, set QR $||$ set EF. Fill in the blanks to prove that set PR $||$ seg DF.



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11. In ΔABC,ray BD bisects $\angle ABC$ and ray CE bisects $\angle ACB$. If seg AB $\cong$ seg AC, then prove that ED $||$ BC.

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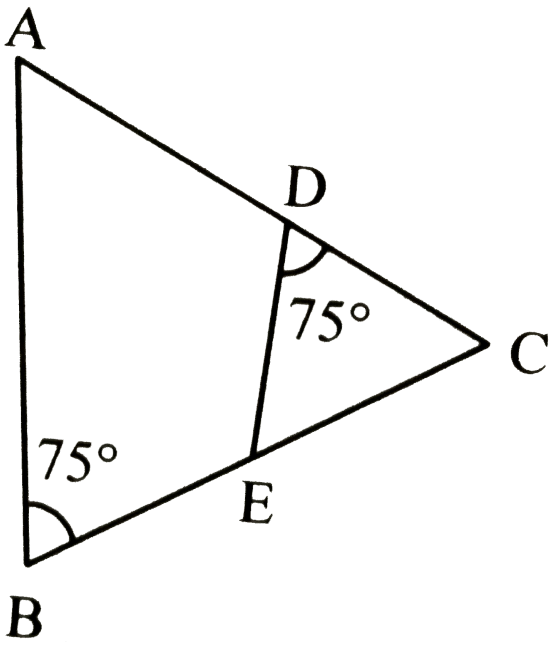
Practice Set 1 3

1. In the adjoining figure, $\angle ABC = 75^\circ$, $\angle EDC = 75^\circ$. State which two triangle are similar and by which test? Also write the similarity of these two triangles by a

proper one to one correspondence.



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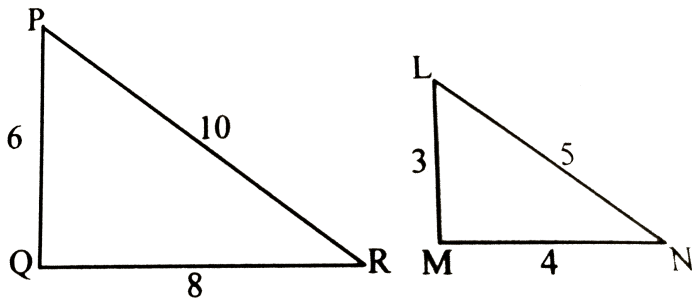
2. Are the triangle in the adjoining figure similar? If yes, by which test?



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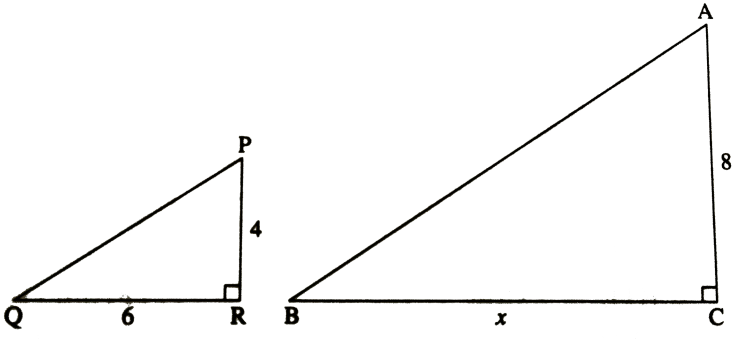
3. As shown in the figures, two poles of height 8m and 4m are perpendicular to the groudn. If the length of shadow smaller pole due to sunlight is 6 m then long will be the shadow of the bigger pole of the same time?



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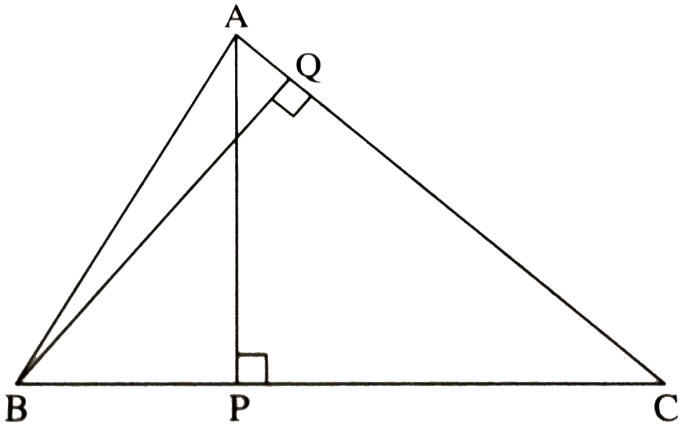
4. In $\Delta ABC, AP \perp BC, BQ \perp AC. B - P - C, A - Q - C,$ then prove that $\Delta CPA \sim \Delta CQB.$

If $AP = 7, BQ = 8, BC = 12$ then find AC.



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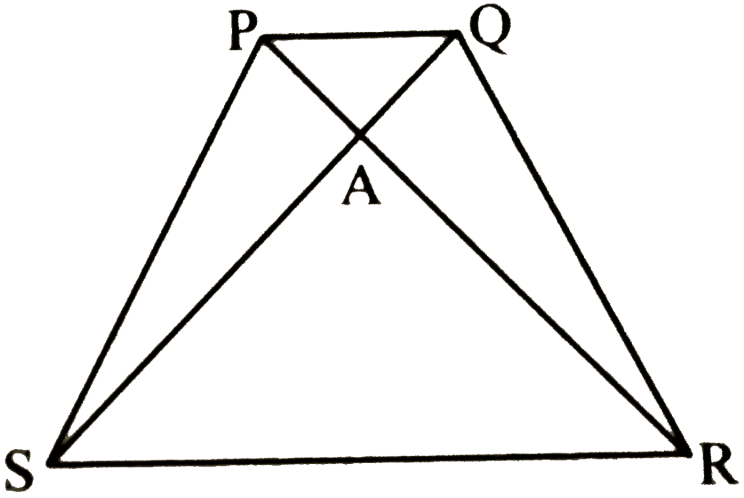
5. Given : In trapezium PQRS, side PQ||SR, AR = 5 AP, AS = 5 AQ, then prove that SR=5 PQ.



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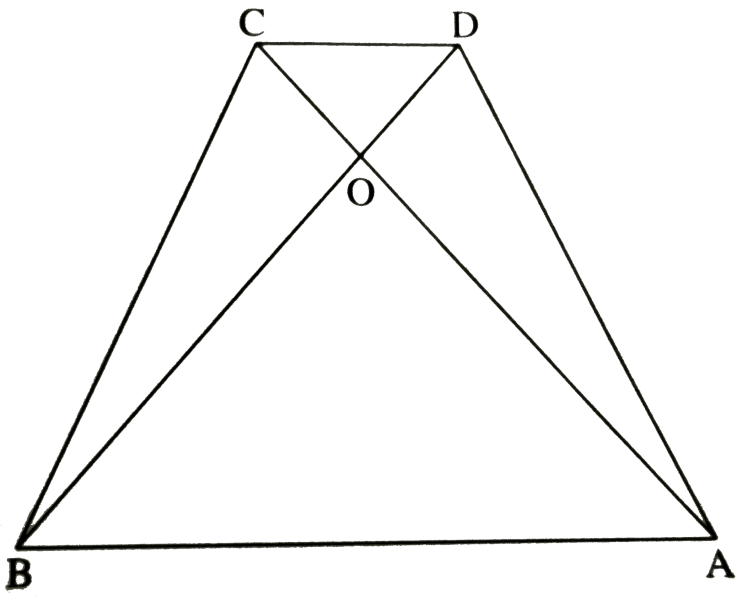
6. In trapezium ABCD side AB | | side DC, diagonals AC and BD intersect In point O. If

$AB = 20, DC = 6, OB = 15$ thn find OD.



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7. $\square ABCD$ is a parallelogram. Point E is on side BC. Line DE intersects ray AB in point T. Prove that $DE \times BE = CE \times TE$.

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8. In the figure, seg AC and seg BD intersect each other in point P and $\frac{AP}{CP} = \frac{BP}{DP}$. Prove that $\Delta ABP \sim \Delta CDP$.

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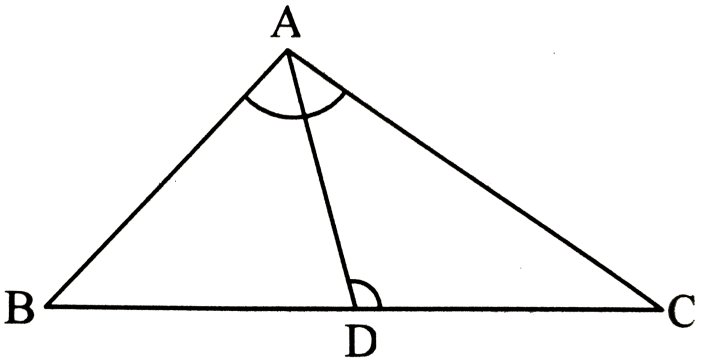
9. In the adjoining figure, in ΔABC, point D is on side BC such that, $\angle BAC = \angle ADC$. Prove that,

$CA^2 = CB \times CD.$



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Practice Set 1 4

1. The ratio of corresponding sides of similar triangles is $3 : 5$, then what is the ratio of their areas.

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2. If $\Delta ABC \sim \Delta PQR$ and $AB : PQ = 2 : 3$, then fill in the blanks:

$$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{(AB)^2}{\square} = \frac{2^2}{3^2} = \frac{\square}{\square}$$

$$\frac{A(\Delta ABC)}{A(\Delta PQR)} = \frac{AB^2}{PQ^2} = \frac{2^2}{3^2} = \frac{4}{9}$$

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3. If $\Delta ABC \sim \Delta PQR$, $A(\Delta ABC) = 80$, $A(\Delta PQR) = 125$, then fill in the blanks:

$$\frac{A(\Delta ABC)}{A(\Delta \ldots\ldots\ldots) = \frac{80}{125} \therefore \frac{AB}{PQ} = \frac{\square}{\square}}$$

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4. $\Delta LMN \sim \Delta PQR$, $9 \times A(\Delta PQR) = 16 \times A(\Delta LMN)$. If $QR = 20$, then find MN.

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5. Areas of two similar triangles are 225 sq cm and 81 sq cm. If a side of the smaller triangle is 12 cm, then find the corresponding side of the bigger triangle.

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6. ΔABC and ΔDEF are equilateral triangles. If $A(\Delta ABC) : A(\Delta DEF) = 1:2$ and $AB = 4$, find DE.

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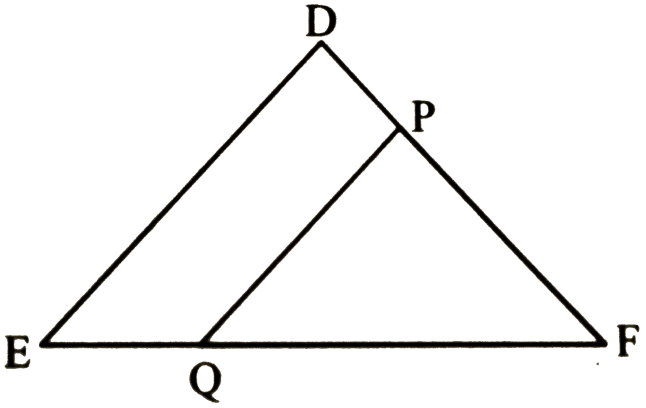
7. In the adjoining figure, seg PQ||seg DE, $A(\Delta PQF) = 20$ sq. uints, PF = 2 DP, then find A ($\square DPQE$) by completing the following activity.



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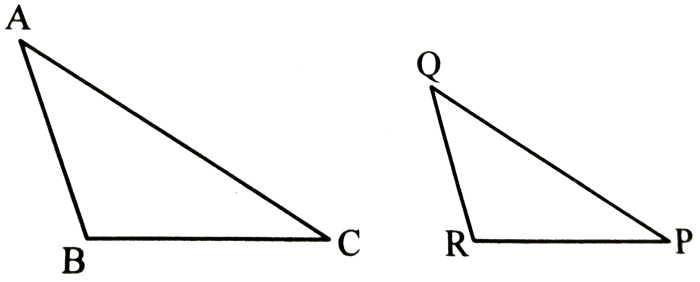
Problem Set 1

1. In ΔABC and ΔPQR, in a one to one correspondence.

$\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ}$, then



A. $\Delta PQR \sim \Delta ABC$

B. $\Delta PQR \sim \Delta CAB$

C. $\Delta CBA \sim \Delta PQR$

D. $\Delta BCA \sim \Delta PQR$

Answer: B

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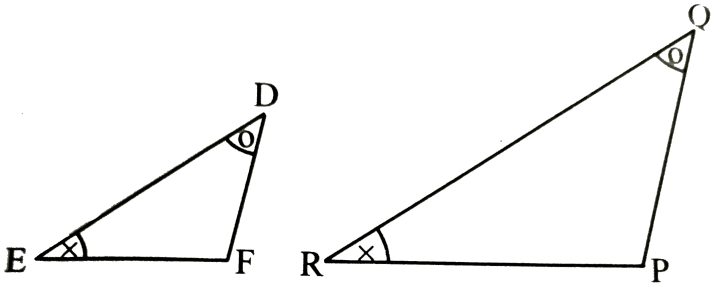
2. If in ΔDEF and $\Delta PQR, \angle D = \angle Q, \angle R = \angle E,$ then which of the following statements is false?



A. $\frac{EF}{PR} = \frac{DF}{PQ}$

B. $\frac{DE}{PQ} = \frac{EF}{RP}$

C. $\frac{DE}{QR} = \frac{DF}{PQ}$

D. $\frac{EF}{RP} = \frac{DE}{QR}$

Answer: B

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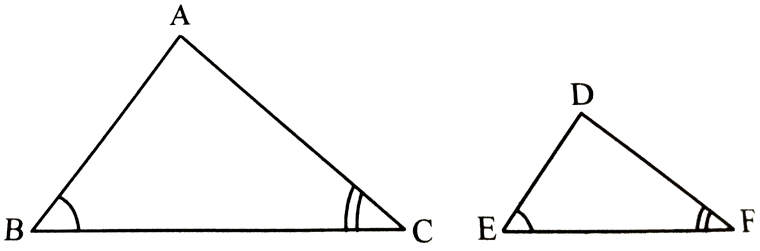
3. In ΔABC and ΔDEF, $\angle B = \angle E, \angle F = \angle C$ and AB = 3 DE, then which of the statements regarding the two triangles is true?



A. The triangles are not congruent and not similar.

B. The triangles are similar but not congruent.

C. The triangles are congruent and similar.

D. None of the statements above is true.

Answer: B

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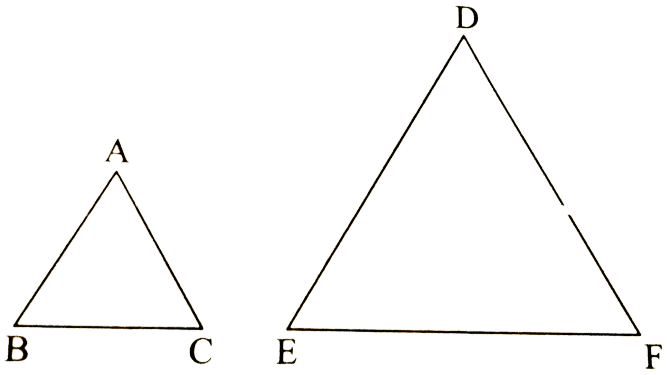
4. ΔABC and ΔDEF are equilateral triangles, $A(\Delta ABC) : A(\Delta DEF) = 1 : 2.$

If $AB = 4$ then what is the length of DE?



A. $2\sqrt{2}$

B. 4

C. 8

D. $4\sqrt{2}$

Answer: D

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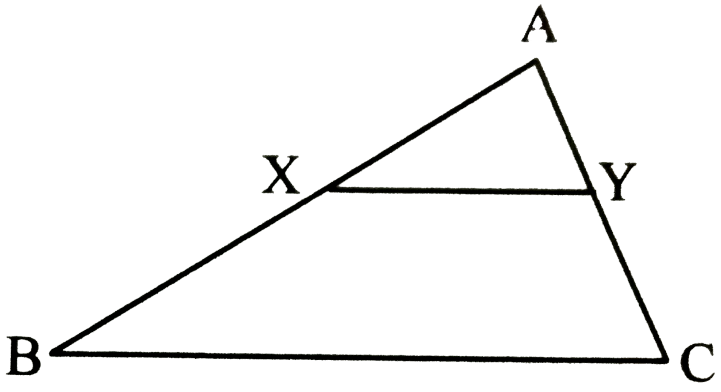
5. In the adjoining figure, seg XY ||seg BC, then which of the following statements is true?



A. $\frac{AB}{AC} = \frac{AX}{AY}$

B. $\frac{AX}{XB} = \frac{AY}{AC}$

C. $\frac{AX}{YC} = \frac{AY}{XB}$

D. $\frac{AB}{YC} = \frac{AC}{XB}$

Answer: A

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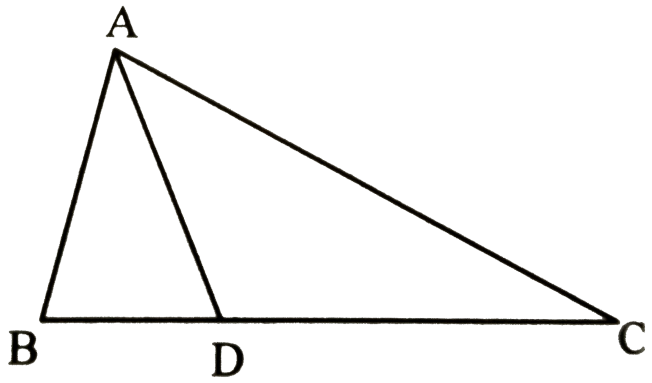
6. In ΔABC,B - D - C and BD = 7, BC = 20, then find the ratio.

$$\frac{A(\Delta ABD)}{A(\Delta ADC)}$$



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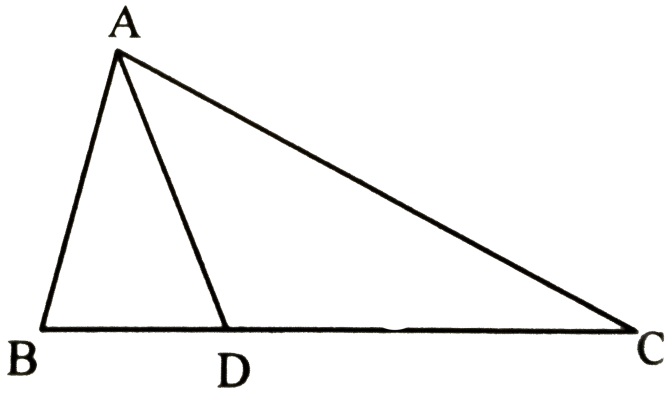
7. In ΔABC,B - D - C and BD = 7, BC = 20, then find the ratio

$$\frac{A(\Delta ABD)}{A(\Delta ABC)}$$



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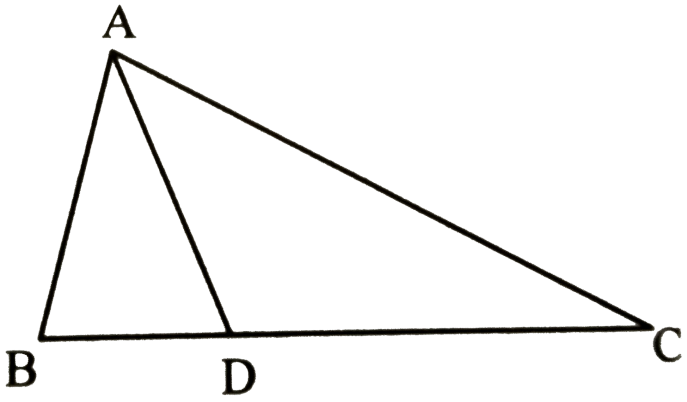
8. In ΔABC,B - D - C and BD = 7, BC = 20, then find following rations.

$$\frac{A(\Delta ADC)}{A(\Delta ABC)}$$



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9. Ratio of areas of two triangles with equal height is $2:3$. If base of the smaller triangle is 6 cm, the what is the corresponding base of the bigger triangle?

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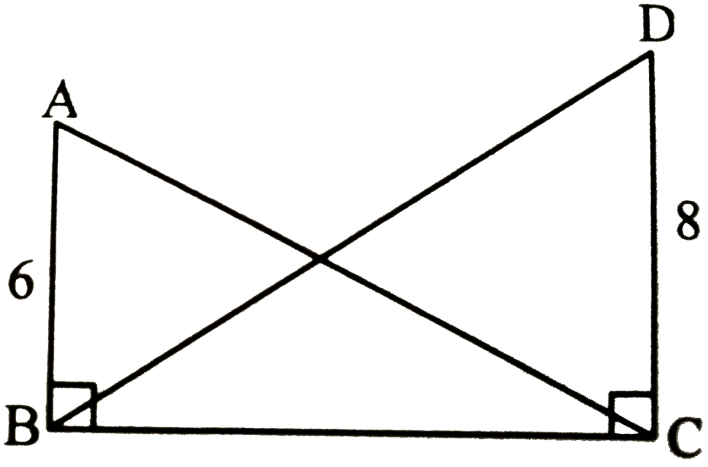
10. In the adjoining figure, $\angle ABC = \angle DCB = 90^\circ$, $AB = 6$, $DC = 8$, then $\frac{A(\Delta ABC)}{A(\Delta DCB)}$ = ?



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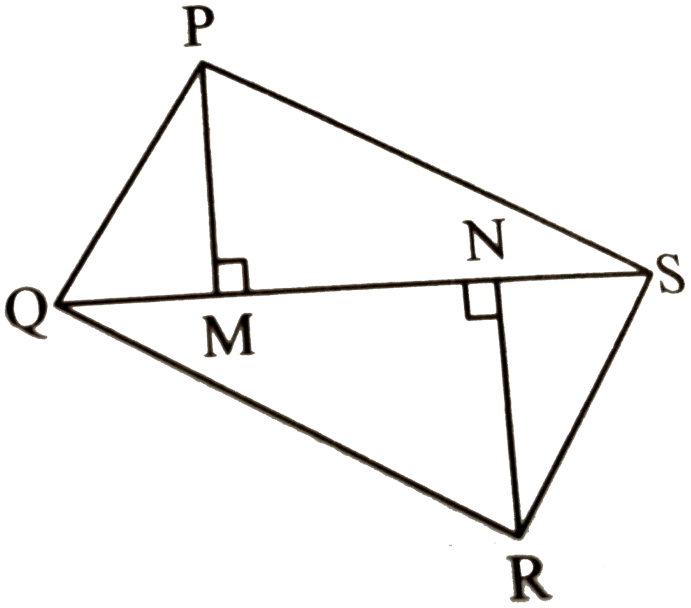
11. In the adjoining figure, PM = 10 cm, $A(\Delta PQS)$ = 100 $sq.\ cm$, $A(\Delta QRS) = 110$sq. cm, then find NR.



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12. $\Delta MNT \sim \Delta QRS$. Length of altitude drawn from point T is 5 and length of altitude drawn from point S is 9. Find the ratio $\frac{A(\Delta MNT)}{A(\Delta QRS)}$.

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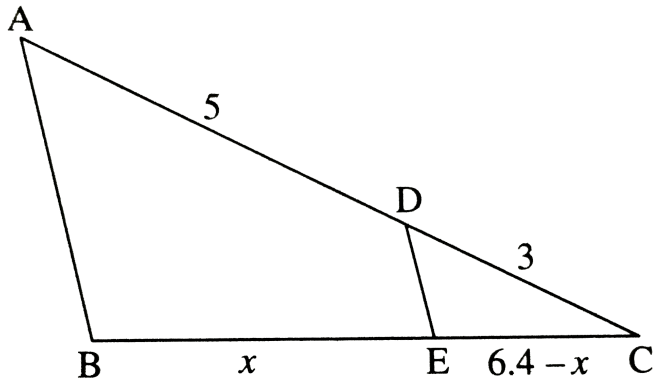
13. In the figure $A - D - C$ and $B - E - C$ seg $DE \mid\mid$ side AB. If $AD = 5, DC = 3, BC = 6.4$ then find BE.



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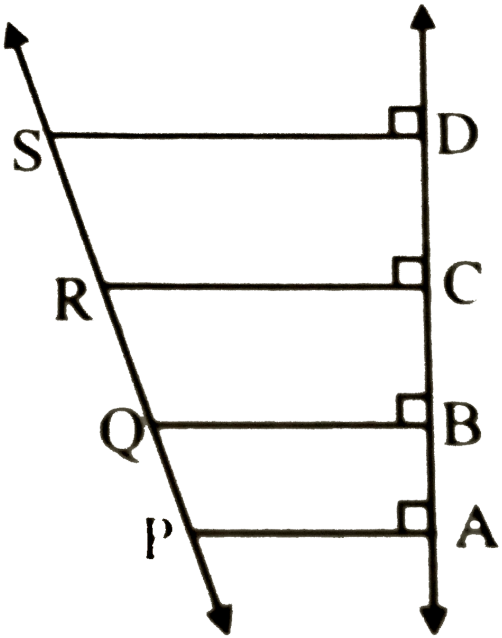
14. In the adjoining figure, seg PA , seg QB, seg RC and seg SD are perpendicular to line AD. AB = 60, BC = 70, CD

= 80, PS = 280, then find PQ, QR and RS.



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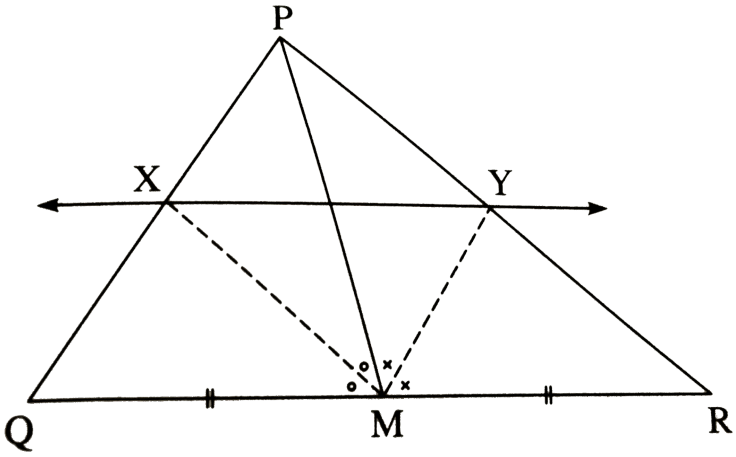
15.



In ΔPQR seg PM is a median. Angle bisectors of $\angle PMQ$ and $\angle PMR$ interesect side PQ and side PR in points X and Y respectively. Prove that $XY \mid\mid QR$.

Complete the proof byfilling in the boxes:

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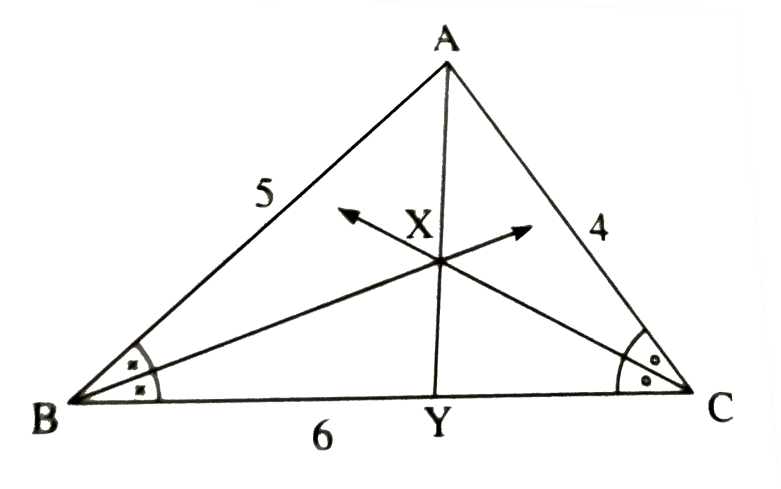
16. In the figure bisectors of $\angle B$ and $\angle C$ of ΔABC intersect each other in point X. Line AX intersects side

BC in pont Y. $AB = 5$, $AC = 4$, $BC = 6$ then find $\frac{AX}{XY}$



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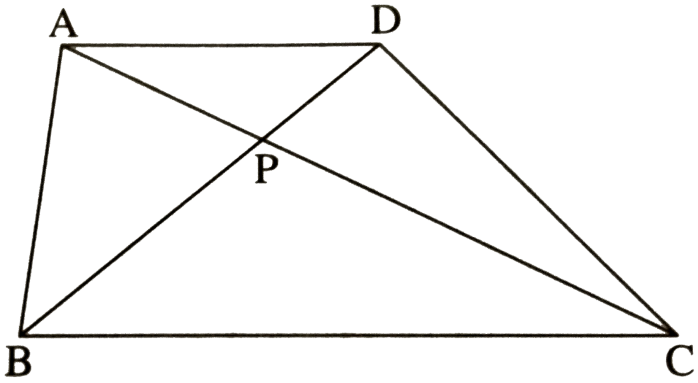
17. In $\square ABCD$, seg AD $||$ seg BC. Diagonal AC and digonal BD intersect each other in point P. Then show

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



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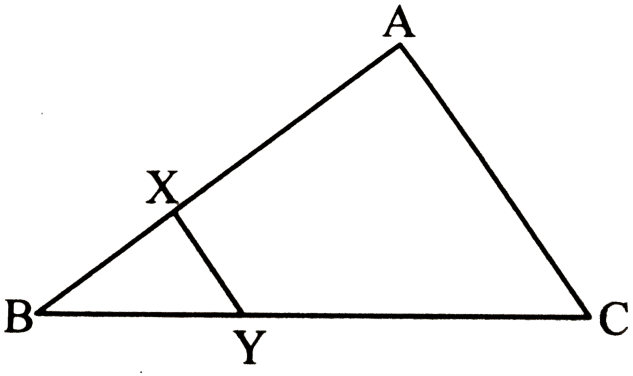
18. In the adoining figure, XY || seg AC. If 2 AX = 3 BX and XY = 9, find the value of AC.



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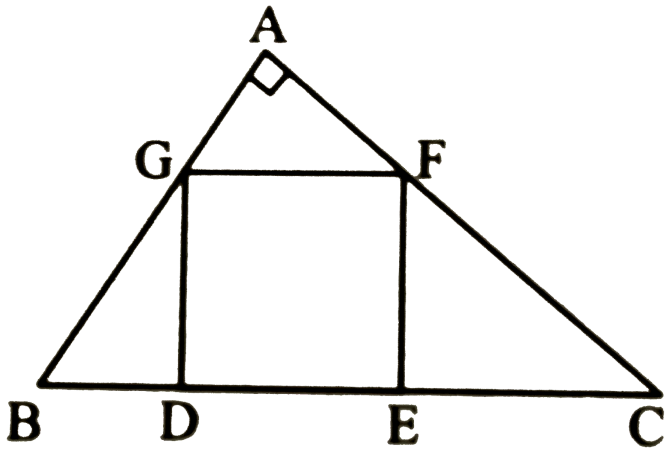
19. In the adjoining figure, the vertices of square DEFG are on the sides of ΔABC. If $\angle A = 90^\circ$, then prove that $DE^2 = BD \times EC$.



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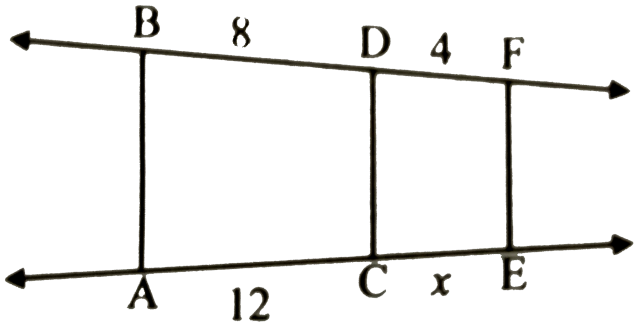
Activites For Practice

1. In the adjoining figure, if AB || CD || FE, then find x and AE.



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2. In ΔABC,ray BD bisects $\angle ABC$ and ray CE bisects $\angle ACB$. If seg AB $\cong$ seg AC, then prove that ED || BC.

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3. ΔABC and ΔDEF are equilateral triangles. If $A(\Delta ABC) : A(\Delta DEF) = 1:2$ and $AB = 4$, find DE.

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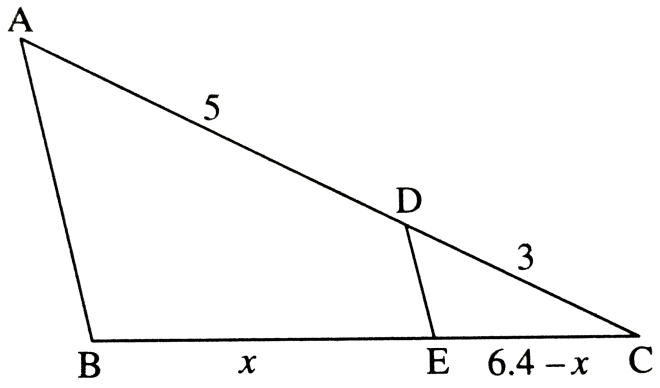
4. In the figure $A - D - C$ and $B - E - C$ seg $DE \mid\mid$ side AB. If $AD = 5$, $DC = 3$, $BC = 6.4$ then find BE.



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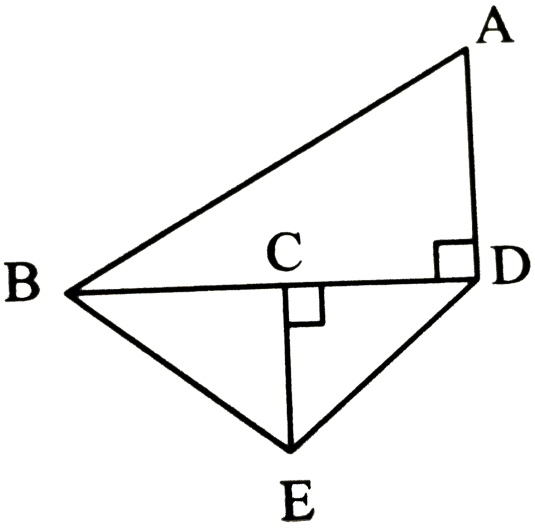
Multiple Choice Questions

1. In the given figure, if AD = 5 cm and CE = 3 , then $\frac{A(\Delta ABD)}{A(\Delta BED)}$= ----------.



A. $\frac{5}{3}$

B. $\frac{25}{9}$

C. $\frac{3}{5}$

D. $\frac{5}{8}$

Answer: A

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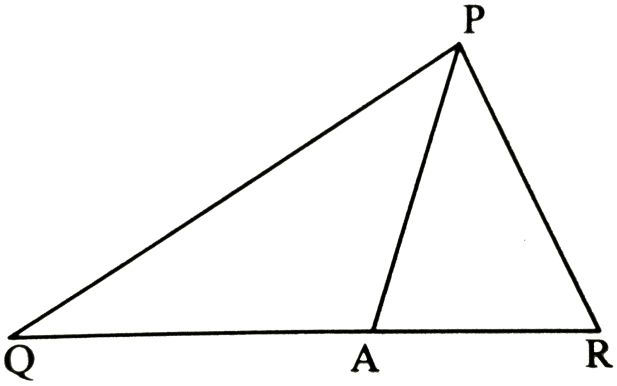
2. In ΔPQR, Q - A - R and QA = 6 cm, QR = 11 cm , then $\frac{A(\Delta PRA)}{A(\Delta PQA)}$=



A. $\frac{5}{6}$

B. $\frac{6}{5}$

C. $\frac{3}{5}$

D. $\frac{5}{3}$

Answer: A

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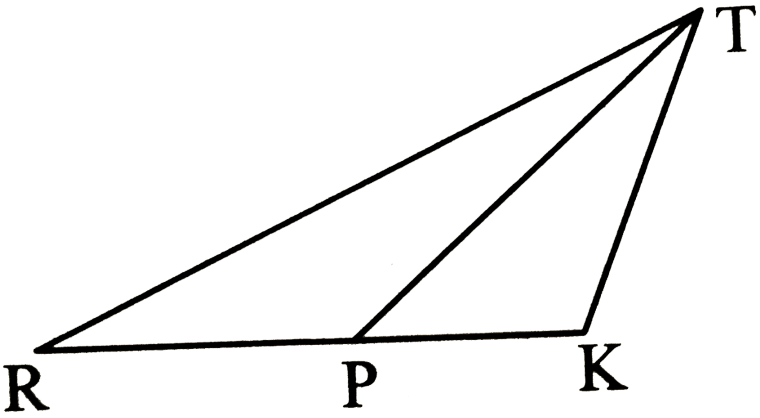
3. In the figure, RP : PK = 11 : 8, then $\frac{A(\Delta TRP)}{A(\Delta TPK)}$ =



A. $11:8$

B. $8:11$

C. $7:11$

D. $11:19$

Answer: A

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4. Ratio of areas of two triangles with equal bases is 3 : 4. If height of the bigger triangle is 20 cm, then the corresponding height of the smaller triangle is

A. 4 cm

B. 9 cm

C. 12 cm

D. 15 cm

Answer: D

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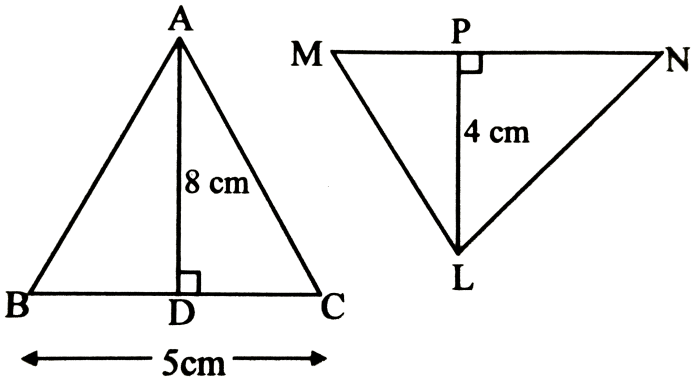
5. If $A(\Delta ABC) = A(\Delta LMN)$, then MN =



A. 40 cm

B. 10 cm

C. 4 cm

D. 20 cm

Answer: B

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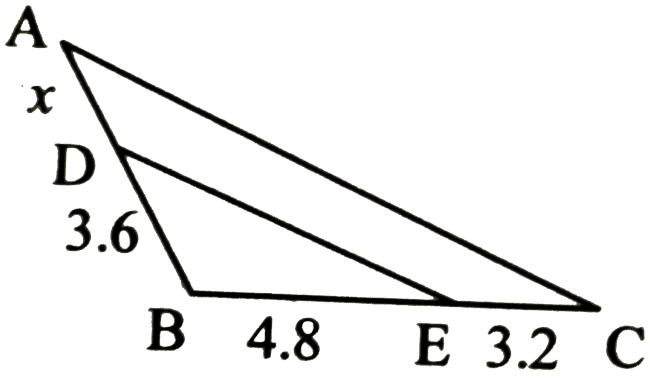
6. In the given figure, if DE || AC , then AB =



A. $2.4 units$

B. $5.4 units$

C. $6 units$

D. $9 units$

Answer: C

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7. X and Y are points on sides AB and AC respectively of ΔABC. For which of the following cases will XY be parallel to BC?

A. AX = 1.3 cm, XB = 3.9 cm,

AY = 2.8 cm, YC = 5.6 cm,

B. AX = 1.3 cm, XB = 3.9 cm,

AY = 2.8 cm, YC = 8.4 cm

C. AX = 1.3 cm, XB = 2.6 cm,

AY = 2.8 cm, YC = 8.4 cm

D. AX = 1.3 cm, XB = 2.6 cm,

AY = 2.8 cm, YC = 11.2 cm

Answer: B

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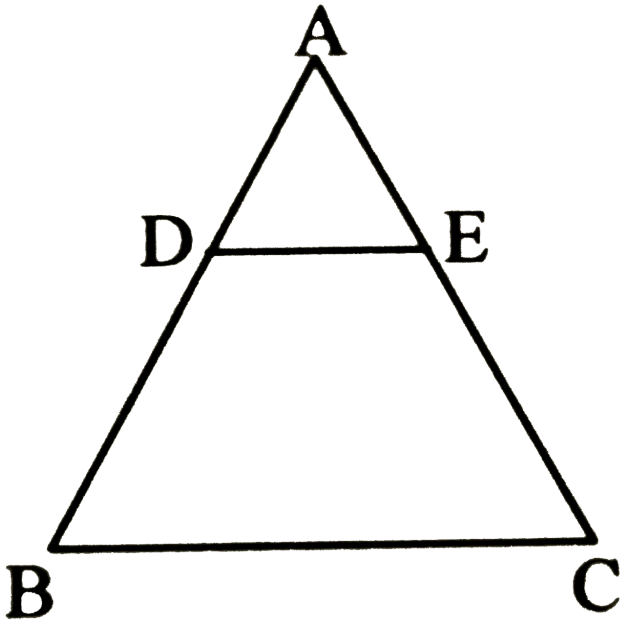
8. In the given figure, DE || BC. If AB = 12 cm and AD = 3cm, then AE : EC =



A. $1:2$

B. $1:3$

C. $1:4$

D. $4:1$

Answer: B

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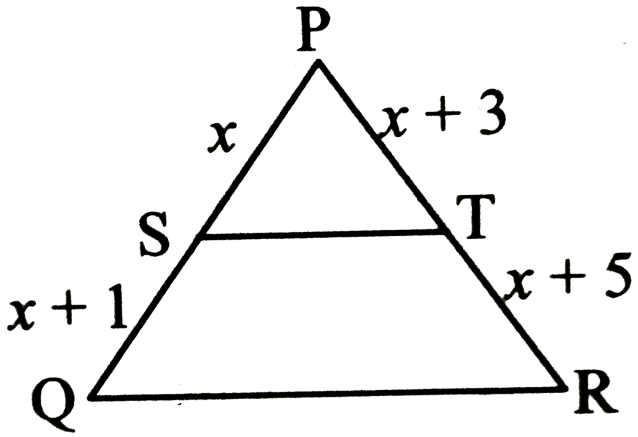
9. In ΔPQR, if ST || QR, then what is the value of x?



A. 1

B. 2

C. 3

D. 4

Answer: C

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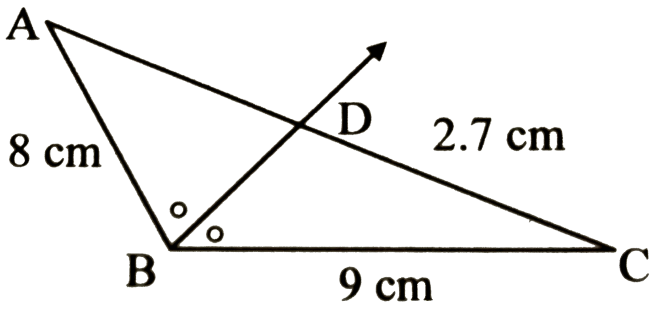
10. Ray BD is the angle bisector of $\angle ABC$. The perimeter of ΔABC is



A. 2.4 cm

B. 3.1 cm

C. 22.1 cm

D. 22.8 cm

Answer: C

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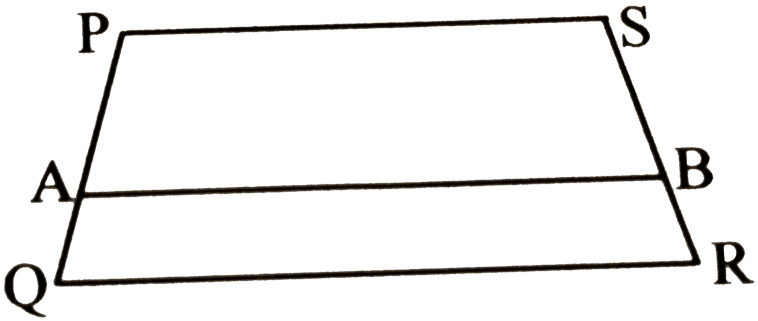
11. $\square PQRS$ is a trapezium, and AB || PS || QR. If PA = 3 cm, AQ = 1.4 cm, BR = 2.1 cm, then SB =



A. 2 cm

B. 2.5 cm

C. 4 cm

D. 4.5 cm

Answer: D

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12. In ΔABC and ΔXYZ, $\frac{AB}{YZ} = \frac{BC}{ZX} = \frac{AC}{XY}$, then by which correspondence are ΔABC and ΔXYZ similar?

A. ABC $\leftrightarrow$ XYZ

B. ABC $\leftrightarrow$ YXZ

C. ABC $\leftrightarrow$ YZX

D. BAC $\leftrightarrow$ YZX

Answer: C

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13. If in ΔPQR and ΔXYZ, $\frac{PQ}{XY} = \frac{QR}{XZ}$ then the triangles will be similar, when

A. $\angle P \cong \angle X$

B. $\angle R \cong \angle Y$

C. $\angle Q \cong \angle Y$

D. $\angle Q \cong \angle X$

Answer: D

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14. If $\Delta PQR \sim \Delta DEF, \angle P = 65^\circ$ and $\angle F = 32^\circ$, then $\angle Q$ is

A. 32°

B. 65°

C. 83°

D. 97°

Answer: C

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15. यदि $\triangle ABC \sim \triangle PQR$ तथा 2AB = PQ व BC = 8 सेमी है तब QR =

A. 4 cm

B. 16 cm

C. 8 cm

D. 32 cm

Answer: B

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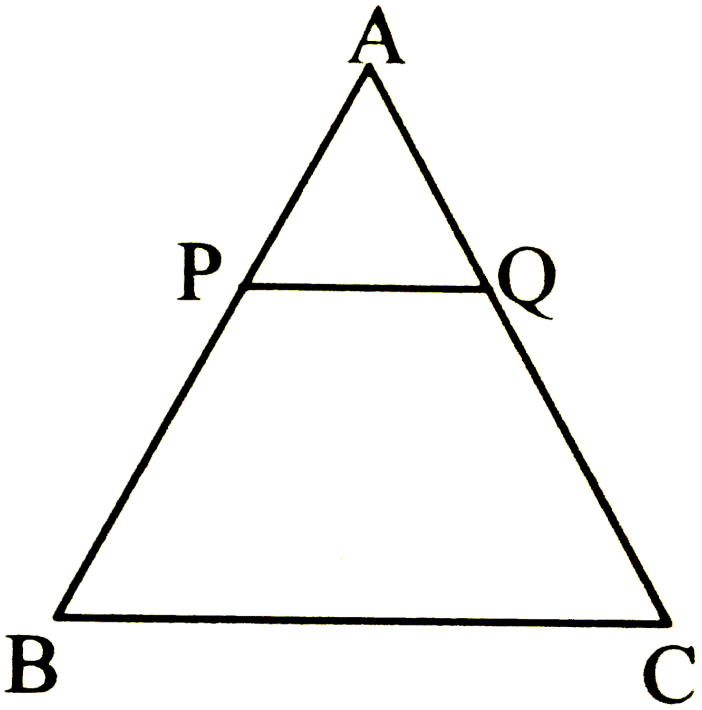
16. In the given figure, if seg PQ$||$ seg BC such that $\frac{AP}{AB} = \frac{2}{5}$, then $\frac{PQ}{BC}$ is equal to



A. $\frac{2}{3}$

B. $\frac{2}{5}$

C. $\frac{3}{2}$

D. $\frac{5}{2}$

Answer: B

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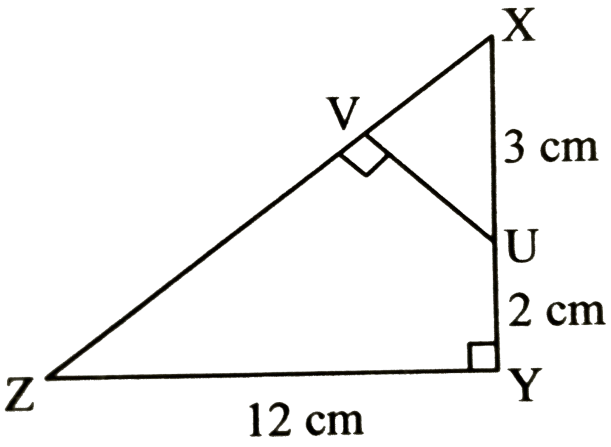
17. In the figure, if ΔXYZ is right angled at Y and UV $\perp$ XZ, XZ = 13 cm , then the lengths of XV and UV respectively are.



A. 15cm, 36cm

B. 36cm, 15cm

C. $\frac{15}{13}cm, \frac{36}{13}cm$

D. $\frac{36}{13}cm, \frac{15}{13}cm$

Answer: C

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18. A vertical pole of length 6 m casts a shadow 4 m long on the ground and at the same time a tower casts a shadow 28 m long. Find the height of the tower.

A. 14 m

B. 28 m

C. 35 m

D. 42 m

Answer: D

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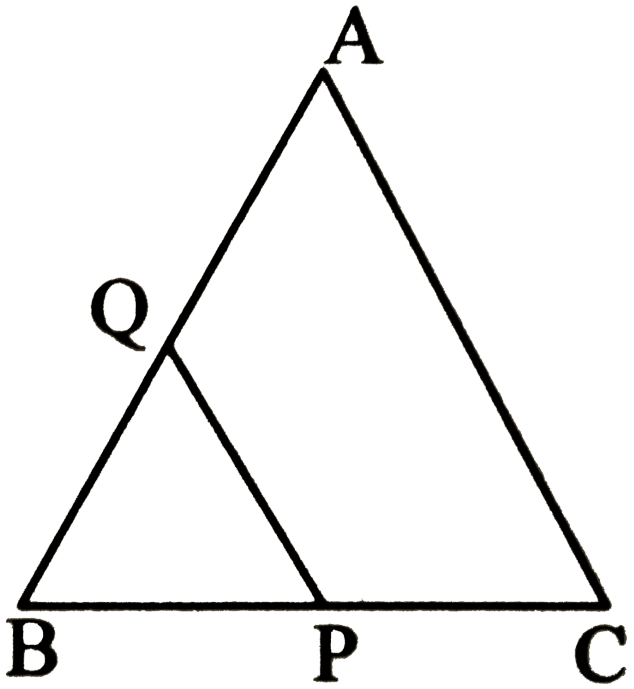
19. In the figure, $\Delta ABC \sim \Delta BPQ$. If AB = BC and P is the midpoint of seg BC, then $A(\Delta ABC) : A(\Delta BPQ) =$



A. $1:2$

B. $2:1$

C. $1:4$

D. $4:1$

Answer: D

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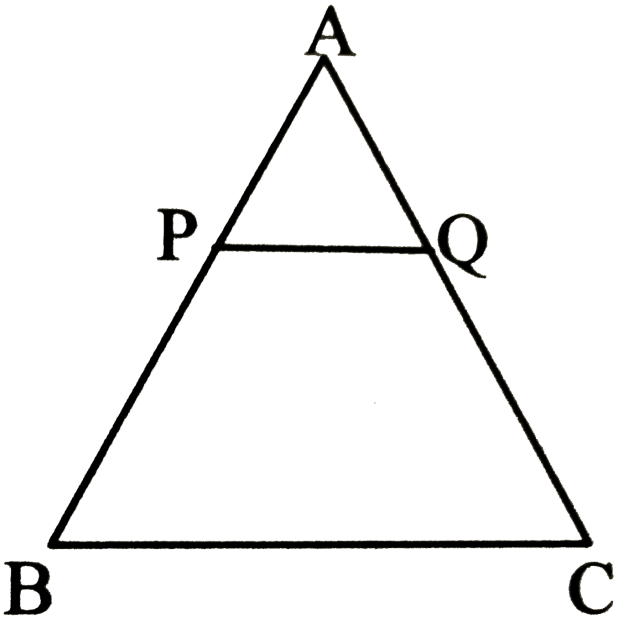
20. In the figure, $\Delta ABC \sim \Delta APQ$. If AB 12 cm, and AQ $= \frac{1}{4}$ AC, then the length of AP is



A. 2 cm

B. 3 cm

C. 4 cm

D. 6 cm

Answer: B

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21. $\Delta PQR \sim \Delta XYZ$. PQ : XY = 7 : 3, then $A(\Delta PQR) : A(\Delta XYZ)$=

A. $7:3$

B. $3:7$

C. $49:9$

D. $9:49$

Answer: C

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22. If $\Delta ABC \sim \Delta PQR$ with $\frac{BC}{QR} = \frac{1}{3}$, then $\frac{ar(\Delta PRQ)}{ar(\Delta BCA)}$ is equal to

A. 9

B. 3

C. $\frac{1}{3}$

D. $\frac{1}{9}$

Answer: A

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23. $\Delta ABC \sim \Delta DEF$. If BC = 5 cm,EF = 7.5 cm and $A(\Delta DEF) = 45cm^2$, then $A(\Delta ABC)$ =

A. $10cm^2$

B. $20cm^2$

C. $30cm^2$

D. $40cm^2$

Answer: B

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24. If the ratio of corresponding sides of similar triangles is 3 : 4 , then the ratio of their areas is

A. $3:4$

B. $4:9$

C. $9:16$

D. $16:9$

Answer: C

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25. The areas of two similar triangles are $32cm^2$ and $50cm^2$. The ratio of their corresponding sides is

A. $3:7$

B. $4:5$

C. $5:4$

D. $16:25$

Answer: B

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26. $\Delta PQR \sim \Delta UTS$. If $A(\Delta PQR) : A(\Delta UTS) = 16 : 9$, and TS = 1.8 cm, then QR =

A. 1.35 cm

B. 2.4 cm

C. 3.2 cm

D. 1.1 cm

Answer: B

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27. $\Delta DEF \sim \Delta MNK$. If $DE = 2, MN = 5,$ then find the value of $\frac{A(\Delta DEF)}{A(\Delta MNK)}$

A. $\frac{2}{5}$

B. $\frac{5}{2}$

C. $\frac{4}{25}$

D. $\frac{25}{4}$

Answer: C

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28. If $\Delta ABC \sim \Delta DEF$ such that $A(\Delta ABC) = 4A(\Delta DEF)$ and AC = 6 cm, then DF =

A. 2 cm

B. 3 cm

C. 6 cm

D. 9 cm

Answer: B

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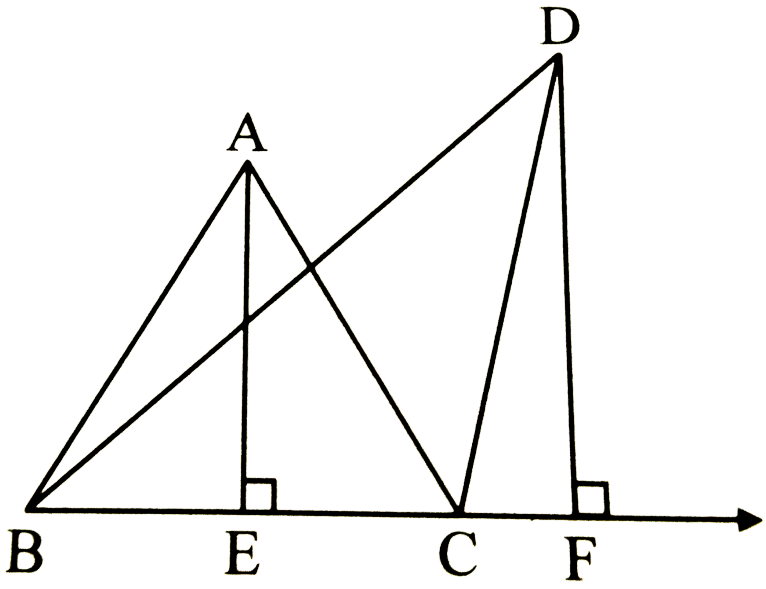
Additonal Problems For Practice Basid On Practice Set 1 1

1. In given figure, seg AE $\perp$ seg BC, seg DF $\perp$ line BC, AE = 4, DF = 6, then find $\frac{A(\Delta ABC)}{A(\Delta DBC)}$.



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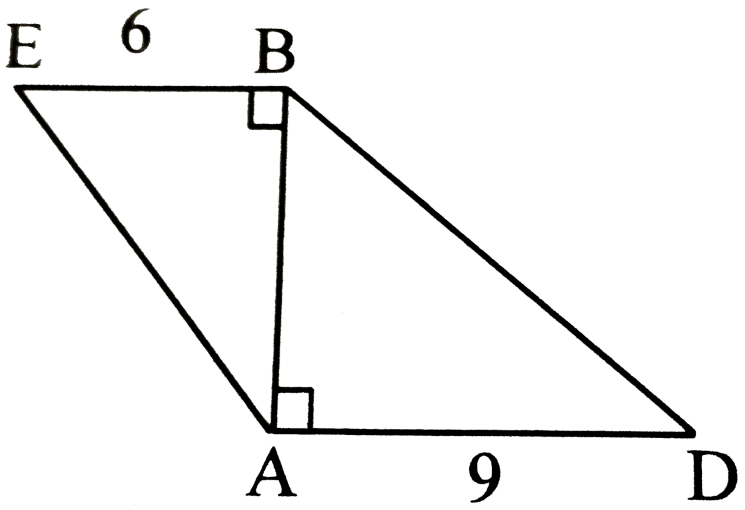
2. In the given figure, seg BE $\perp$ seg AB and seg BA $\perp$ seg AD. If BE = 6 and AD = 9, then find $\frac{A(\Delta ABE)}{A(\Delta BAD)}$.



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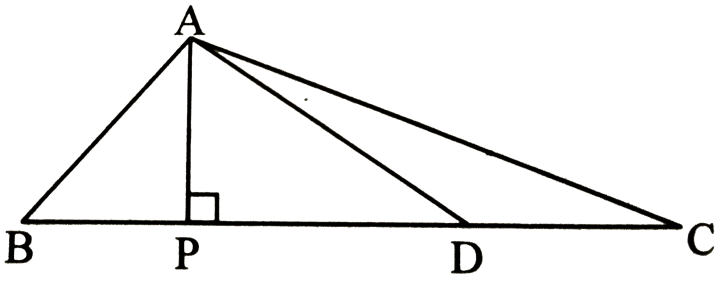
3. In ΔABC,point D is on side BC such that DC = 6, BC = 15. find

(i)$A(\Delta ABD) : A(\Delta ABC)$ and

(ii) $A(\Delta ABD) : A(\Delta ADC)$.



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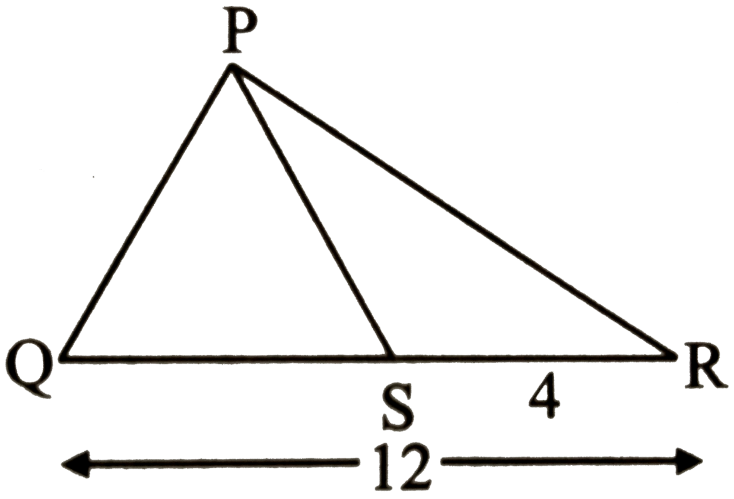
4. In the given figure,QR = 12 and SR = 4.

Find the values of

(i) $\frac{A(\Delta PSR)}{A(\Delta PQR)}$

(ii) $\frac{A(\Delta PQS)}{A(\Delta PQR)}$

(iii) $\frac{A(\Delta PQS)}{A(\Delta PSR)}$



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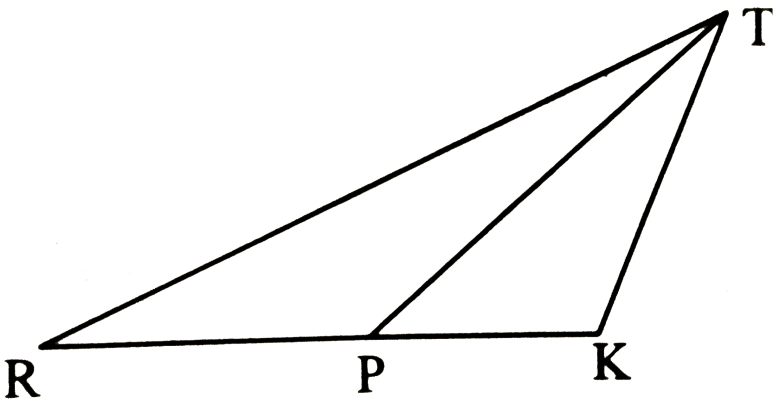
5. In the given figure, if RP : PK = 3: 2, then find the following ratios.

(i) $A(\Delta TRP) : A(\Delta TPK)$

(ii) $A(\Delta TRK) : A(\Delta TPK)$

(iii) $A(\Delta TRP) : A(\Delta TRK)$



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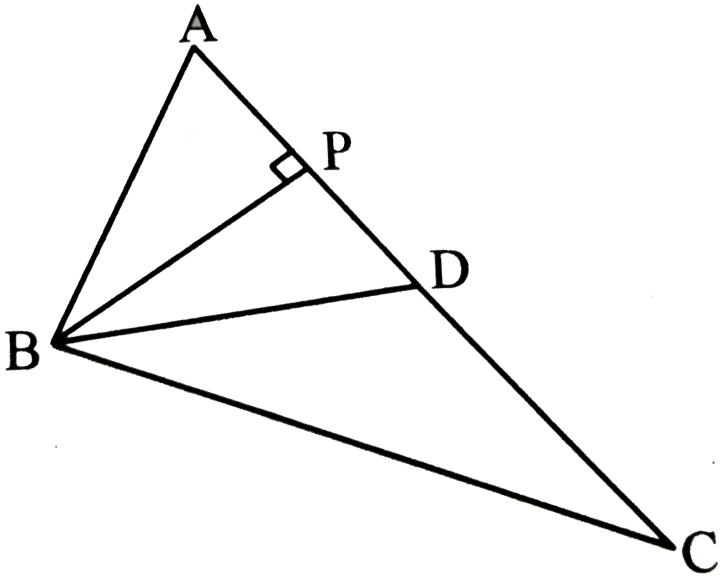
6. In the given figure, in ΔABC, point D is on side AC. If AC = 16, DC = 9 and BP $\perp$ AC then, find the following rations.

i. $\frac{A(\Delta ABD)}{A(\Delta ABC)}$

ii. $\frac{A(\Delta BDC)}{A(\Delta ABC)}$

iii. $\frac{A(\Delta ABD)}{A(\Delta BDC)}$



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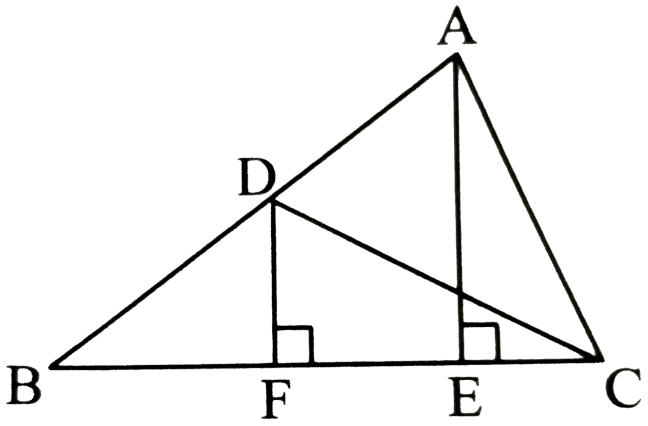
7. In the given figure, seg AE $\perp$ seg BC and seg DF $\perp$ seg BC. Find

i. $\frac{A(\Delta ABC)}{A(\Delta DBC)}$

ii. $\frac{A(\Delta DBF)}{A(\Delta DFC)}$

iii. $\frac{A(\Delta AEC)}{A(\Delta DBF)}$



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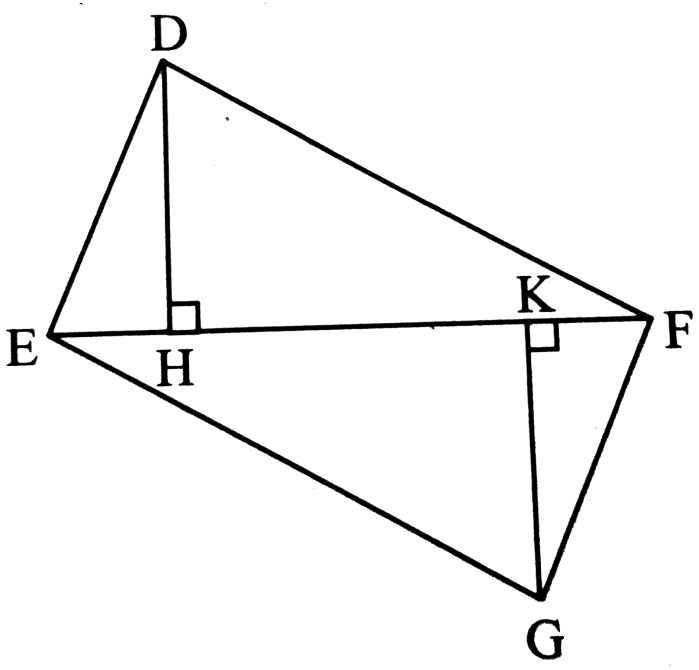
8. In the following figure, seg DH $\perp$ seg EF and seg GK $\perp$ EF. If DH = 6 cm, GK = 10 cm and $A(\Delta DEF)$ = 150cm^2, then find:

(i) EF

(ii) A(ΔGEF)

(iii) $A(\square DFGE)$



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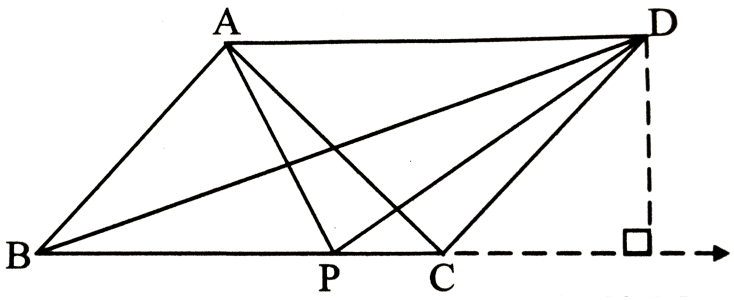
9. $\square ABCD$ is a parallelogram. P is any point on side BC. Find two pairs of triangles with equal areas.



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10. The ratio of the areas of two triangles with common base is 4:3. Height of the larger triangle is 6 cm, then find the corresponding height of the smaller triangle.

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11. The ratio of the areas of two triangles with the common base is 6:5. Height of the larger triangle is 9

cm, then find the corresponding height of the smaller triangle.

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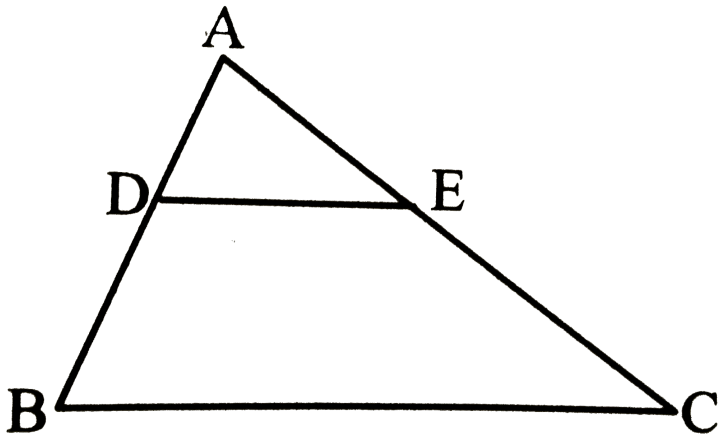
Additonal Problems For Practice Based On Practice Set 1 2

1. In ΔABC, $DE||BC$. If DB = 5.4 cm, AD = 1.8 cm, EC = 7.2 cm, then find AE.



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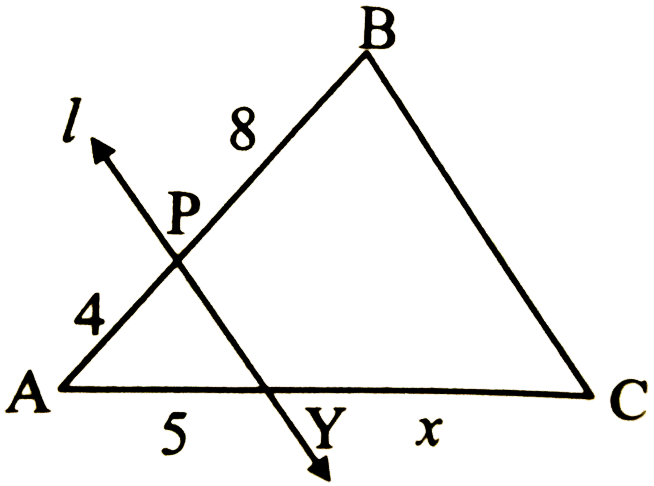
2. In the given figure, line l || side BC, AP = 4, PB = 8, AY = 5 and YC= x. Find x.



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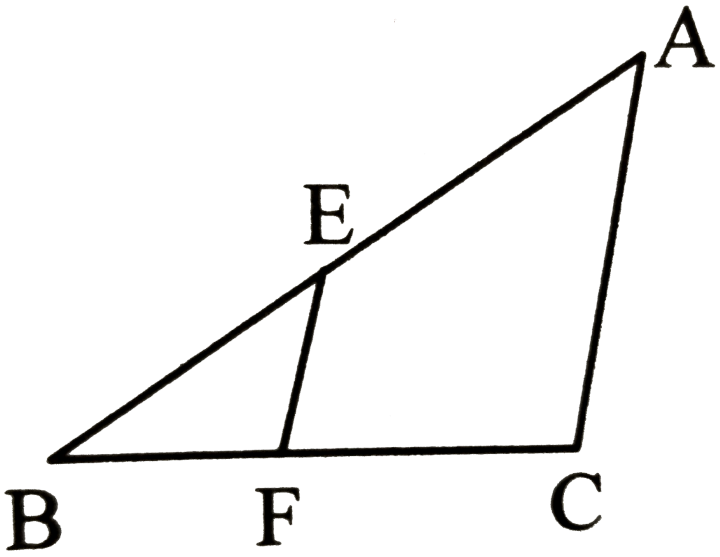
3. In the adjoining figure, seg EF|| side AC, AB = 18, AE = 10, BF = 4. Find BC.



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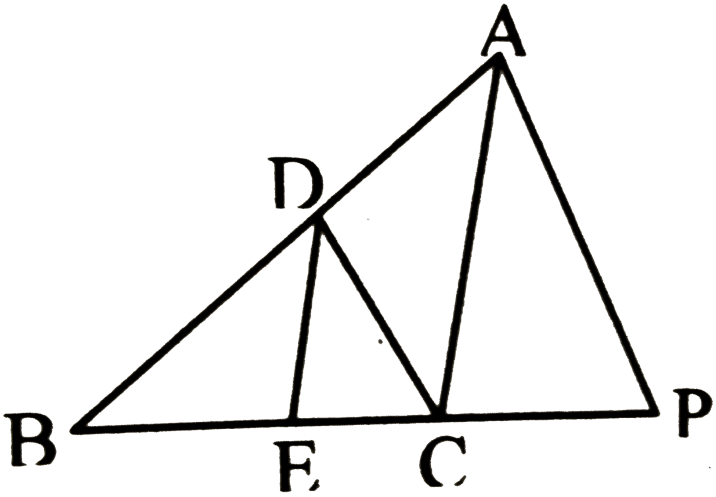
4. In the adjoining figure,seg DE||side AC and seg DC || side AP.

Prove that $\frac{BE}{EC} = \frac{BC}{CP}$.



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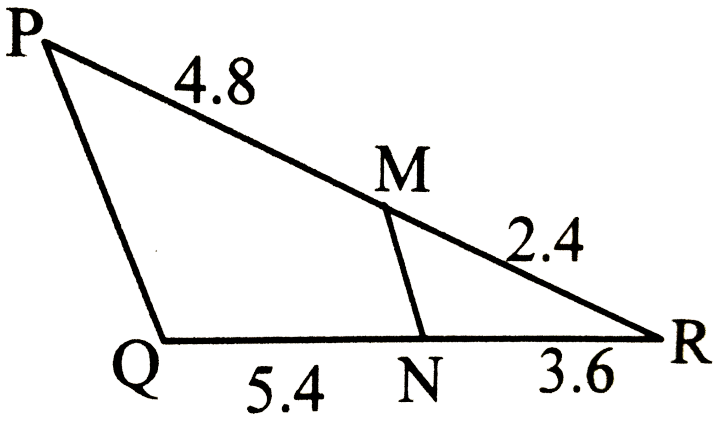
5. In the adjoining figure, PM = 4.8, MR = 2.4, QN = 5.4, NR = 3.6.

State with reason whether seg MN is Parallel to side PQ

or not?



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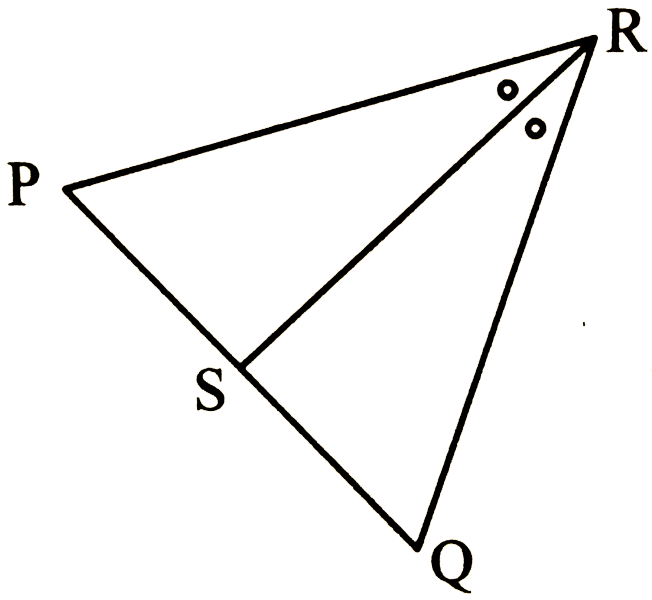
6. In ΔPQR, seg RS bisects $\angle R$.if PR = 15, RQ = 20, PS = 12 , then find SQ.



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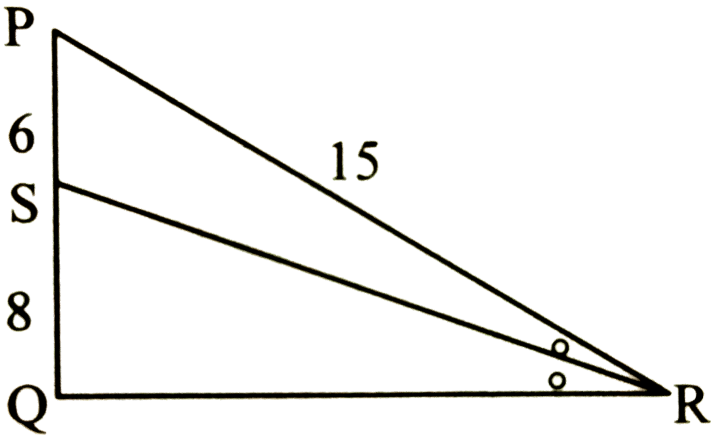
7. In the following figure, in ΔPQR, seg RS is the bisector of $\angle PRQ$, PS= 6, SQ=8, PR = 15, Find QR.



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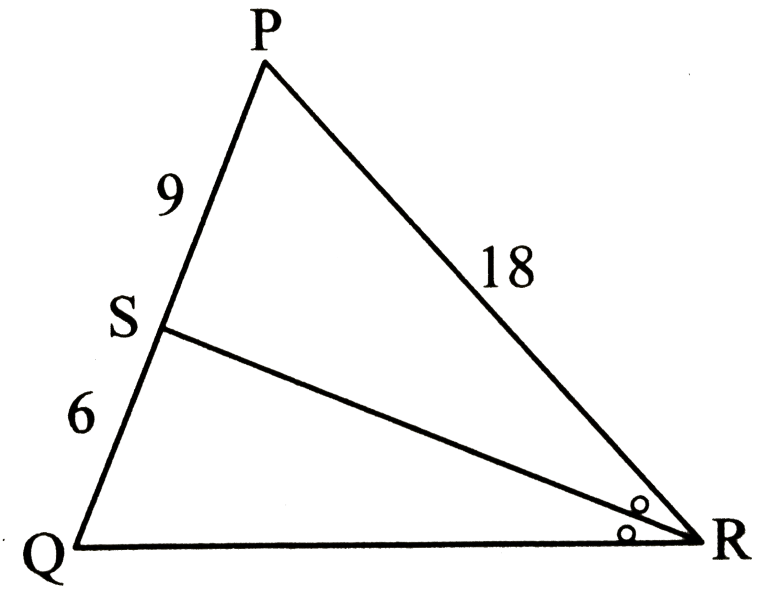
8. In the following figure, in ΔPQR, seg RS is the bisector of $\angle PRQ$. If PS = 9, SQ = 6, PR = 18, find QR.



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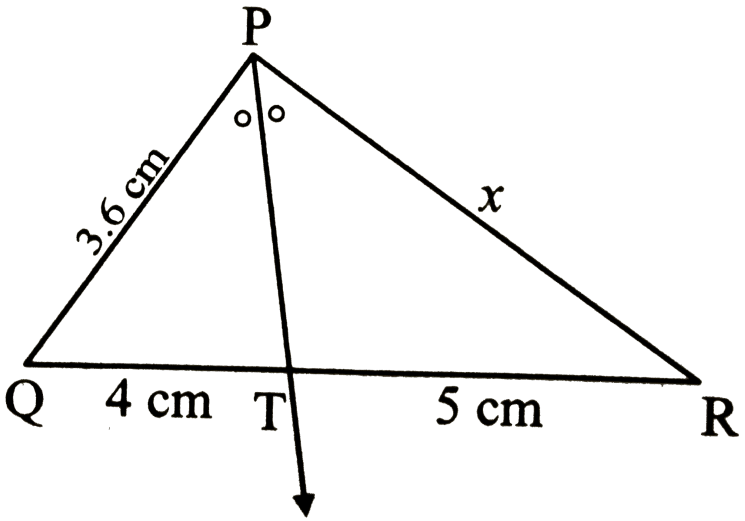
9. In the following figure, ray PT is the bisector of $\angle QPR$. Find the value of x and perimeter of ΔPQR.



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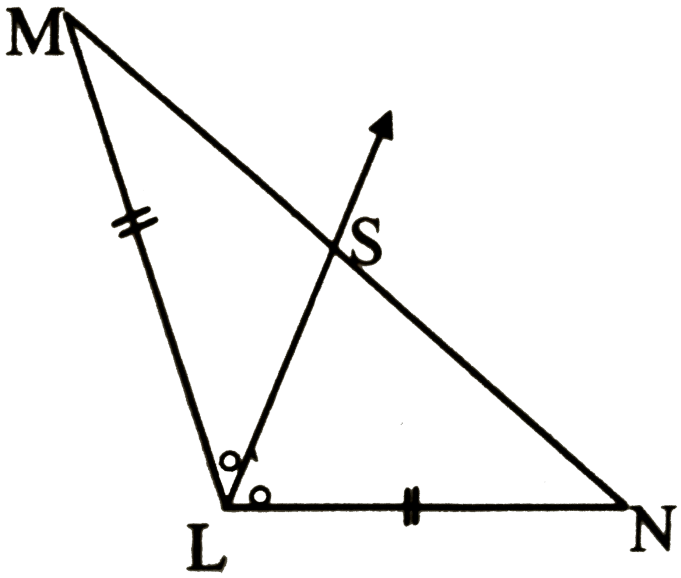
10. In the given figure, ray LS is the bisector of $\angle MLN$, and $ML = LN$. Find the relation between MS and SN.



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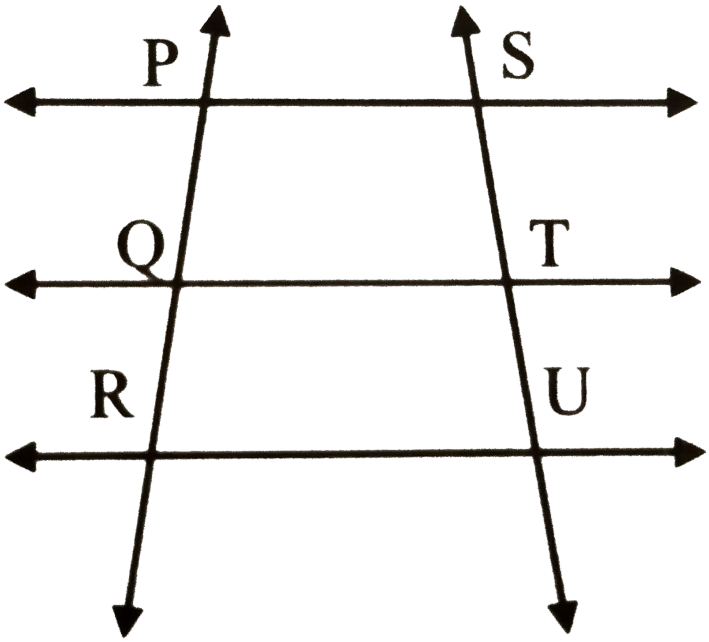
11. In the adjoining figure, seg PS||seg QT||seg RU, PQ = 6.4, PR = 9.6 and ST = 11, then find the length of SU.



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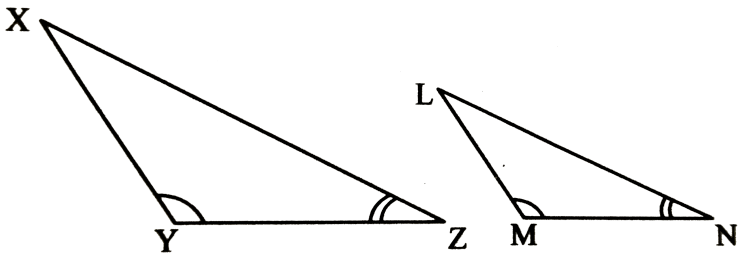
Additonal Problems For Practice Based On Practice Set 1 3

1. In $\Delta XYZ, \angle Y = 100^\circ, \angle Z = 30^\circ.$ In $\Delta LMN, \angle M = 100^\circ, \angle N = 30^\circ.$ Are ΔXYZ and

ΔLMNsimilar? If yes, by which test?



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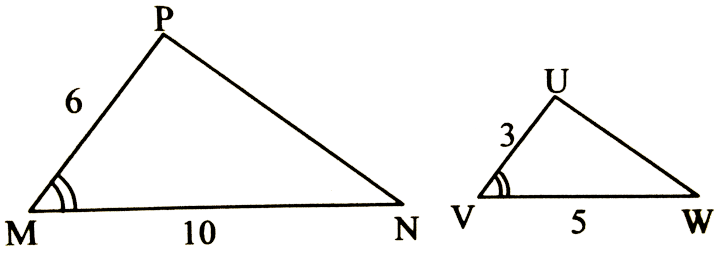
2. Are two triangles in the figure given below similar according to the information given? If yes, by which test?



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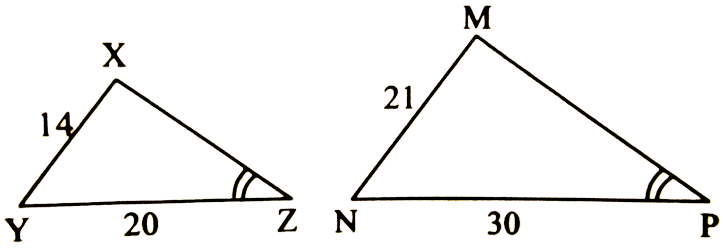
3. Can we say that two triangles in the given figure are similar according to the information given? If yes, by which test?



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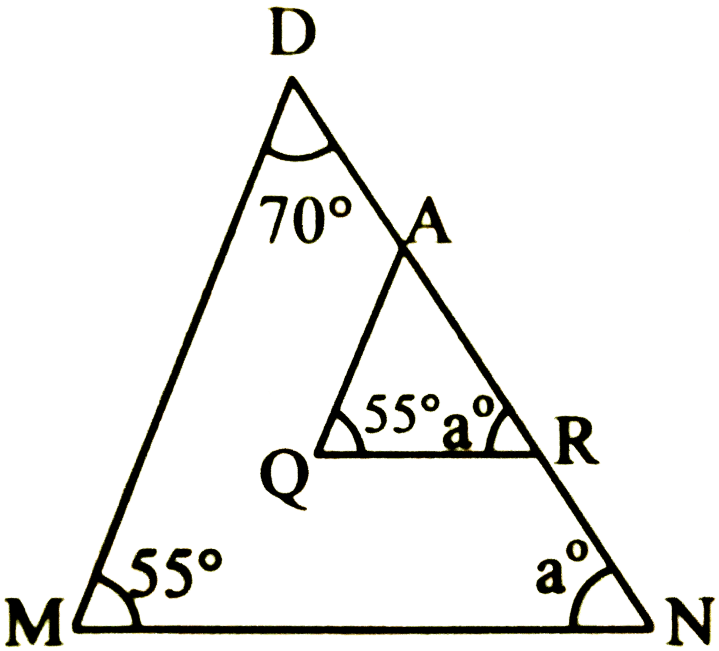
4. In the fiigure given below, which triagles are similar? Justify.



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5. A street light bulb is fixed on a pole 6 m above the level of the street. If a women of height 1.5 m casts a shadow of 3 m, then find how far she is away from the base of the pole.

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6. Diagonals of a quadrilateral ABCD intersect in point Q. if 2 QA = QC, 2 QB = QD, then prove that DC = 2 AB.

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7. In $\square ABCD$, side $BC \mid\mid$ side AD. Digonals AC and BD intersect each other at P. If $AP = \frac{1}{3}AC$ then prove $DP = \frac{1}{2}BP$.

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Additonal Problems For Practice Based On Practice Set 1 4

1. $\Delta DEF \sim \Delta MNK$. If DE = 5, and MN = 6, then find the value of $\frac{A(\Delta DEF)}{A(\Delta MNK)}$=

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2. $\Delta ABC \sim \Delta PQR$. If $A(\Delta ABC) = 25$, $A(\Delta PQR) = 16$ find $AB : PQ$.

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3. If $\Delta PQR \sim \Delta PMN$ and $9A(\Delta PQR) = 16$ $A(\Delta PMN)$,then find $\frac{QR}{MN}$.

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4. $\Delta LMN \sim \Delta RST$ and $A(\Delta LMN)$ = 100sq. Cm, $A(\Delta RST)$ = 144sq cm , LM = 5cm. Find RS.

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5. Ratio of corresponding sides of two similar triangles is 2 : 5. if the area of the smaller triangle is 64sq. Cm , then what is the area of the bigger triangle?

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6. ΔABC and ΔDEF are equilateral triangles. If $A(\Delta ABC) : A(\Delta DEF) = 1:2$ and $AB = 4$, find DE.

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7. If the areas of two similar triangles are equal, prove that they are congruent.

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8. In trapezium AC and BD intersect each other at point P. Then prove that $\frac{A(\Delta ABP)}{A(\Delta CPD)} = \frac{AB^2}{CD^2}$.

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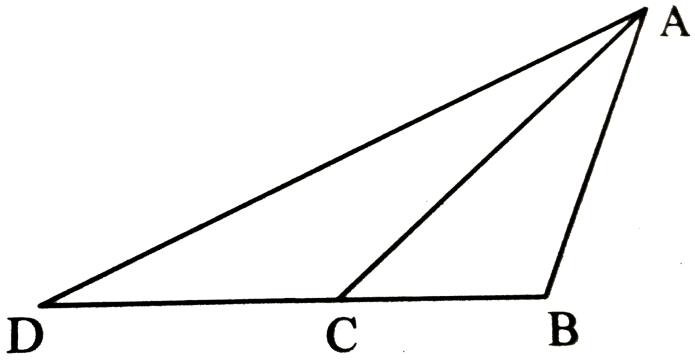
Chapter Assessment

1. Choose the correct alternative.

In the given figure, if BC = 3cm and BD = 7 cm , then $\frac{A(\Delta ABC)}{A(\Delta ABD)}$ =



A. $\frac{7}{3}$

B. $\frac{10}{3}$

C. $\frac{3}{7}$

D. $\frac{3}{10}$

Answer: C

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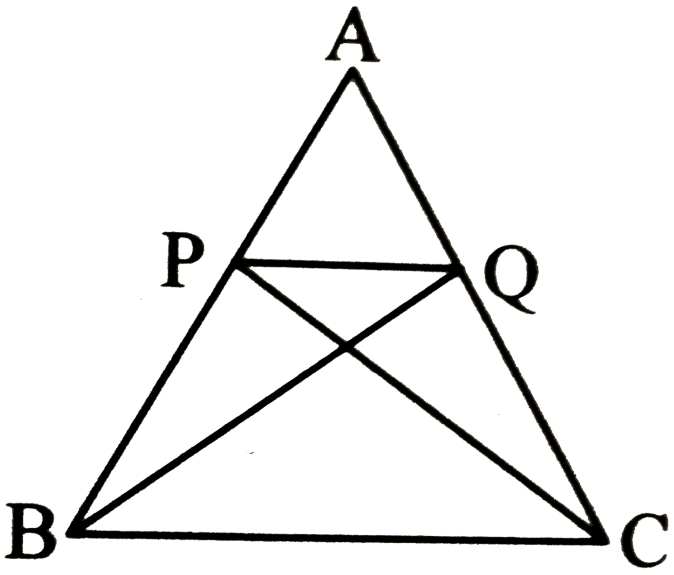
2. Choose the correct alternative.

In the given figure, if seg PQ $||$ BC, then $\frac{A(\Delta BPQ)}{A(\Delta CQP)}$ =



A. $\frac{PQ}{BC}$

B. $\frac{PQ}{QC}$

C. $\frac{QC}{BP}$

D. $\frac{1}{1}$

Answer: D

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3. Choose the correct alternative.

ΔABC and ΔPQR are equilateral triangles. If $A(\Delta ABC) : A(\Delta PQR)$ = 1 : 16, and AB = 2 cm, then what is the length of PR?

A. 4 cm

B. 2 cm

C. 6 cm

D. 8cm

Answer: D

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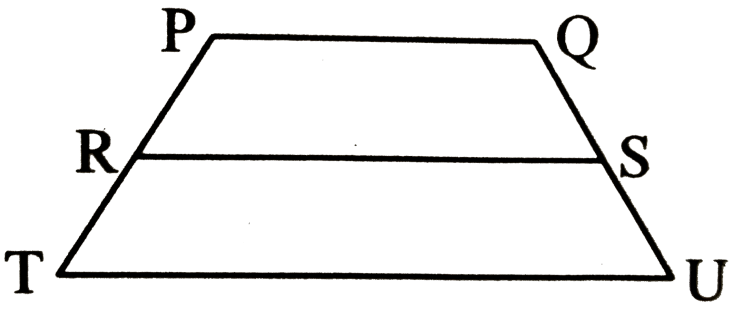
4. Choose the correct alternative.

In the given figure, if seg PQ|| RS ||seg TU, and PR = 6, RT = 3, QS =5 , then what is the length of SU?



A. 2.5 units

B. 7.5 units

C. 10 units

D. 1.5 units

Answer: A

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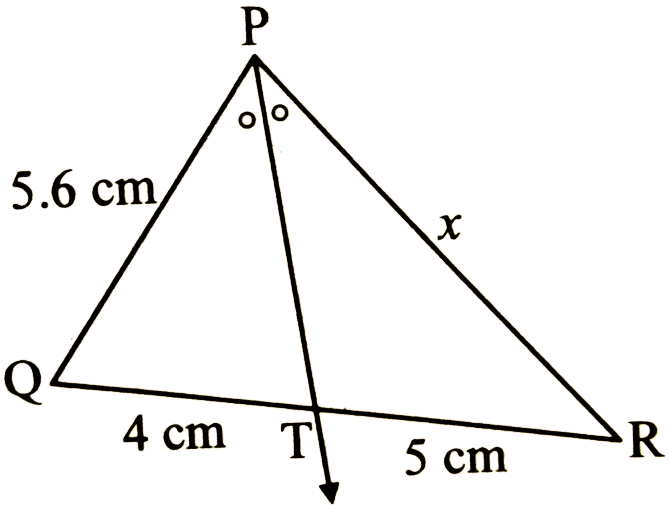
5.

In the given figure, ray PT is the bisector of $\angle QPR$.

Find the value of x.



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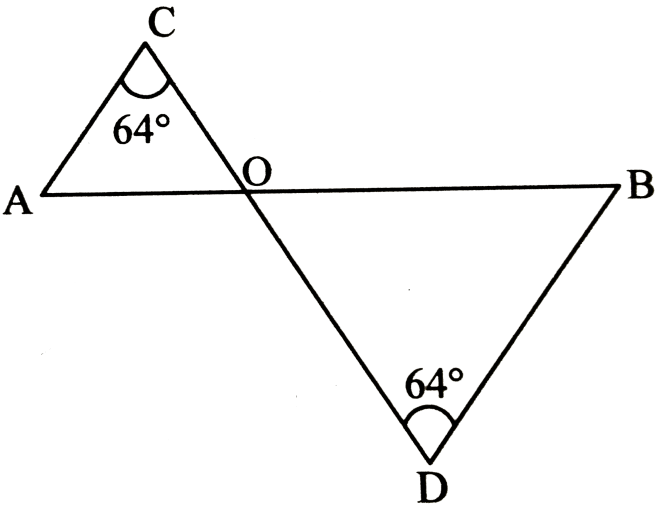
6.

Are the triangle shown in the figure below similar? If so, by which test of similarity?



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7. Complete the following activities

The areas of two triangle with same base are in

proportion of their corresponding height. To prove the theorem, answer the following

a. Draw two triangles, give names of all points,show their bases.

b. Write ' given' and 'to prove' from the figures drawn.

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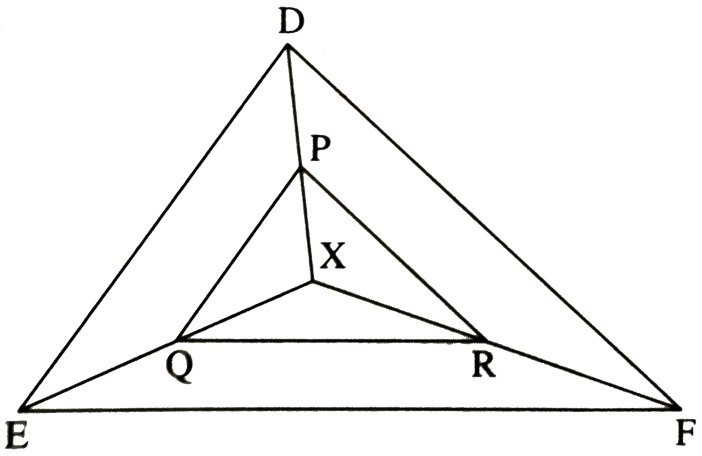
8. In the figure X is any point in the interior of triangle. Point X is joined to vertices of triangle. Seg PQ $||$ set DE, set QR $||$ set EF. Fill in the blanks to prove that set

$PR \mid\mid$ seg DF.



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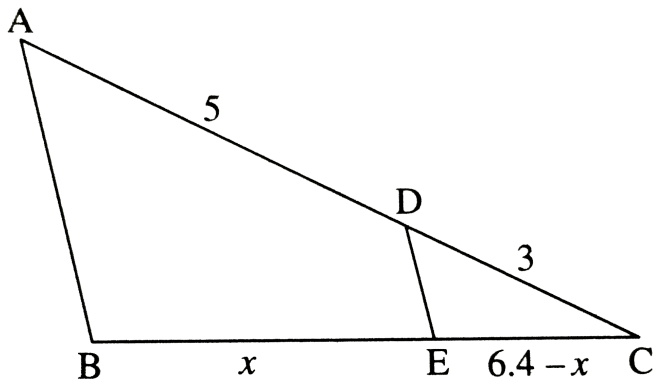
9. In the figure $A - D - C$ and $B - E - C$ seg $DE \mid\mid$ side AB. If $AD = 5, DC = 3, BC = 6.4$ then find BE.



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10. A vertical pole of length 8 m casts a shadow of 15 m long on the ground. At the same time, a tower casts a shadow 45 m long. Find the height of the tower.

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11. The ratio of the areas of two triangles with equal height is 3 : 4. Base of the smaller triangle is 15 cm. Find the corresponding base of the large triangle.

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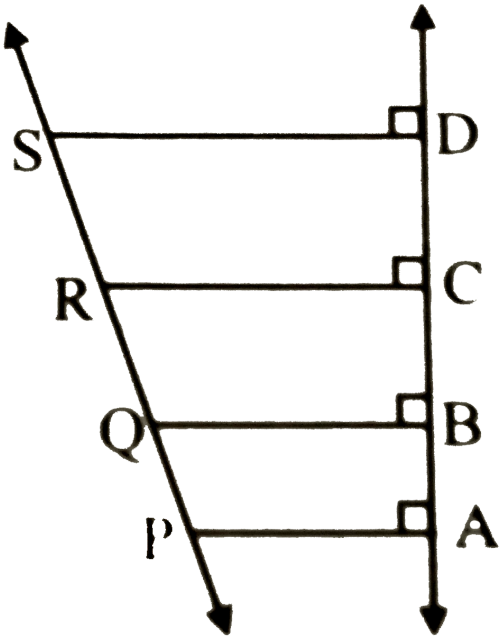
12. In the adjoining figure, seg PA , seg QB, seg RC and seg SD are perpendicular to line AD. AB = 60, BC = 70, CD

= 80, PS = 280, then find PQ, QR and RS.



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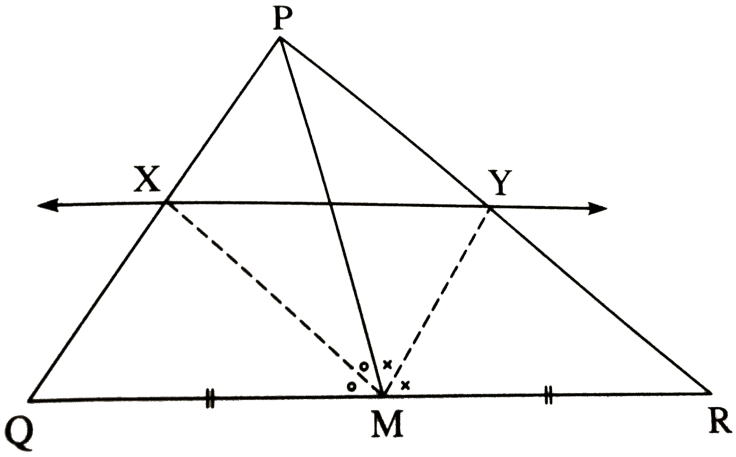
13.



In ΔPQR seg PM is a median. Angle bisectors of $\angle PMQ$ and $\angle PMR$ interesect side PQ and side PR in points X and Y respectively. Prove that $XY \mid\mid QR$.

Complete the proof byfilling in the boxes:

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14. Solve the following questions.

Diagonals of a quadrilateral ABCD intersect in point Q. if

2 QA = QC, 2 QB = QD, then prove that DC = 2AB.

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15. Prove that , "If a line parallel to a side of a triangle intersects the remaining sides in two distinct points then the line divides the sides in the same proportion".

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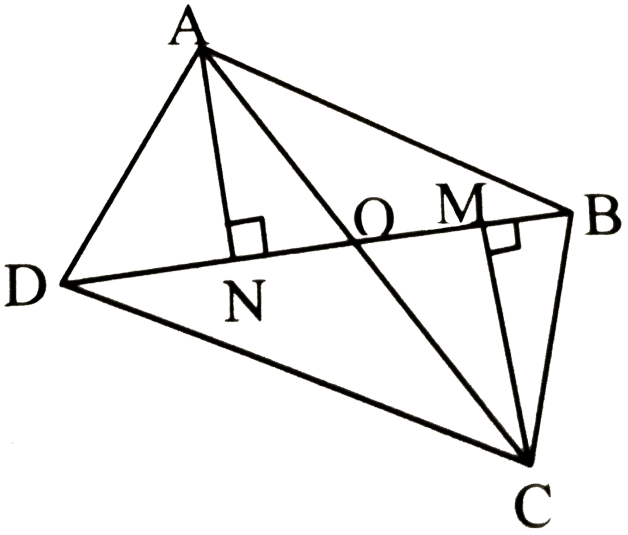
16. Slove the following questions.

In the figure, ΔADB and ΔCDB are drawn on the same base BD.if AC and BD intersect at O, then prove

that $\frac{A(\Delta ADB)}{A(\Delta CDB)} = \frac{AO}{CO}$.



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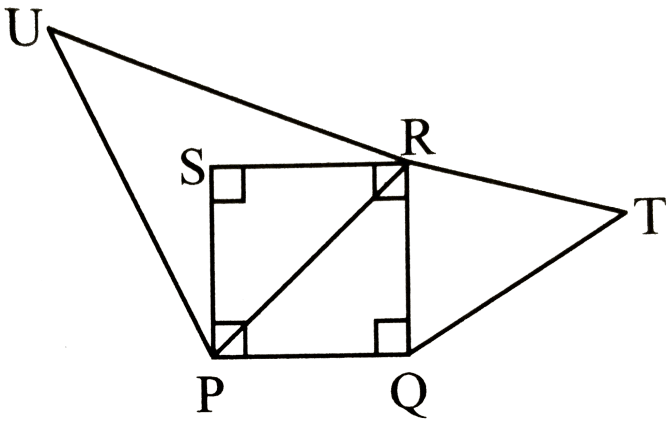
17.

In the given figure, $\square PQRS$ is a square. If ΔQRT and ΔPRU are similar to each other, then

prove that $A(\Delta QRT) = \frac{1}{2}A(\Delta PRU)$.



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18.

Prove that for a given correspondence, if three angles of one triangles are congruent to the corresponding three angles of the other triangle, then the two triangles are similar.

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19. In order to prove, 'The bisector of an angle of a triangle divides the side opposite to the angle in the ratio of the remaining sides.

(i) Draw a neat labelled figure.

(ii) Write 'Given' and 'To prove'.

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