MATHS

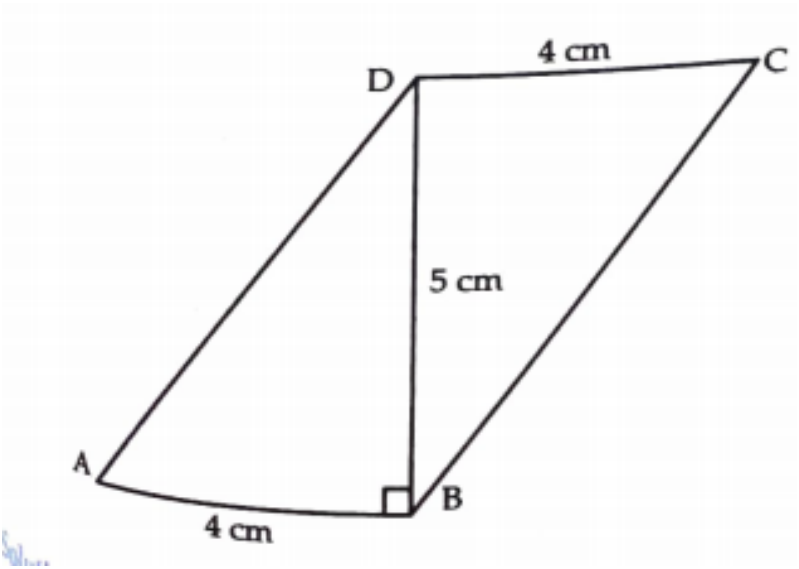
BOOKS - MODERN PUBLICATION

AREA OF PARALLELOGRAMS AND TRIANGLES

Example

1. ABCD is a quadrilateral and BD is one of its diagonals as shown in the figure. Prove that ABCD is a parallelogram

and find its area.



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2. Show that the line segments joining the mid-points of opposite sides of a quadrilateral bisect each other.

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3. Prove that, of all the parallelograms of given sides, the parallelogram, which is recatangle has the greatest area.

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4. Show that a median of a triangle divides it into two triangles of equal areas.

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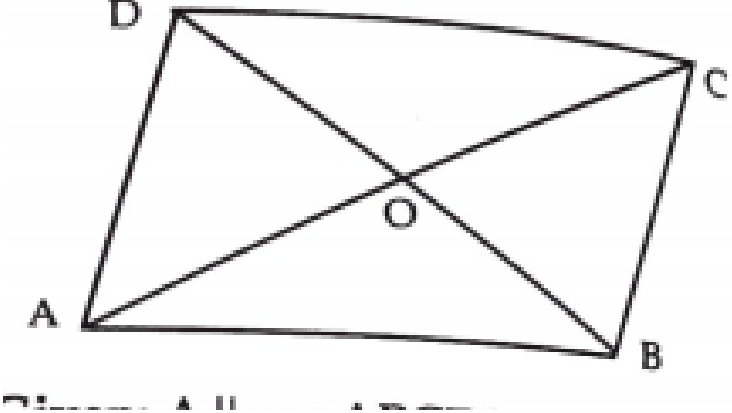
5. Show that the diagonals of a parallelogram divide it into four triangles of equal area.



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6. If each diagonal of a quadrilateral separated it into two triangles of equal area, then show that quadrilateral is a parallelogram.

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7. Prove that the are of the rhombus is half the product of the lengths of its diagonals.

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8. In a quadrilateral ABCD, AO and BO are bisectors of $\angle A$ and angle B respectively. Prove that

$$\angle AOB = \frac{1}{2}(\angle C + \angle D)$$

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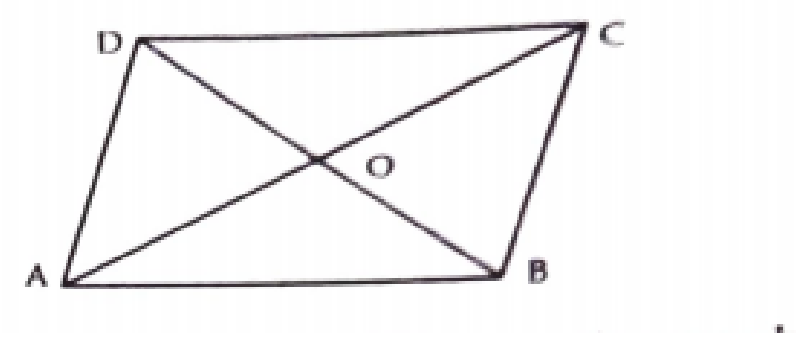
9. In the figure. It is given that AD||BC. Proe that are

$$ar(\triangle COD) = ar(\triangle ABO)$$



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10. D, E and F are respectively the mid-points of the sides BC, CA and AB of a $\triangle ABC$. Show that:- BDEF is a parallelogram.

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11. D,E and F are mid-points of the sides BC, CA and AB respectively of $\triangle ABC$. Prove that

$ar(\triangle DEF) = \frac{1}{4}ar(\triangle ABC)$

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12. D,E and F are mid-points of the sides BC, CA and AB respectively of $\triangle ABC$. Prove that

$ar(||gmBDEF) = \frac{1}{2}ar(\triangle ABC)$

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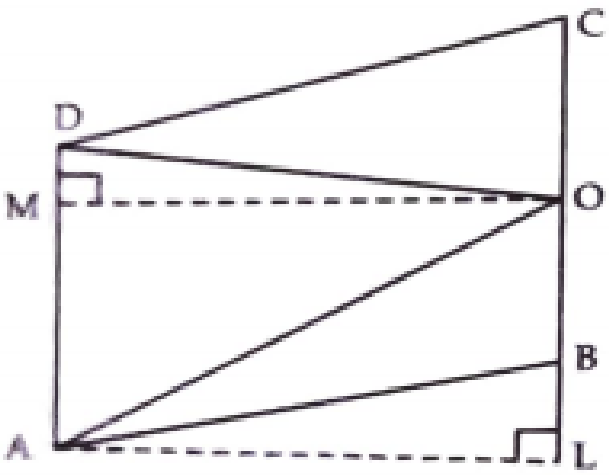
13. In the figure. ABCD is a parallelogram and O is any point on BC . Prove that

$ar(\triangle ABO) + ar(\triangle DOC) = ar(\triangle ODA)$



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14. Triangle ABC and DBC are on the same base BC with A,D on opposite sides of line BC, such that $ar(\triangle ABC) = ar(\triangle DBC)$. Prove that BC bisects AD.

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15. ABCD is trapezium in which AB||DC . DC is produced to E such that CE = AB, prove that $ar(\triangle ABD) = ar(\triangle BCE)$

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16. Prove that the area of an equilateral triangle $\frac{\sqrt{3}}{4}a^2$, where 'a' is the side of te triangle.

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17. In the quadrilateral ABCD, it is given that L is the mid-point of AC. Prove that $arc(qud.\ ABLD) = ar(\ .DLBC)$

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18. P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that ar (APB) = ar (BQC).

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19. ABCD is a parallelogram and a line through A meets DC at P and BC (produced) at Q. Prove that $ar(\triangle BPC) = ar(\triangle DPQ)$

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20. ABC is a triangle in which D is the mid-point of BC and E is the mid-point of AD. Prove that: $ar(\triangle BED) = \frac{1}{4}ar(\triangle ABC)$

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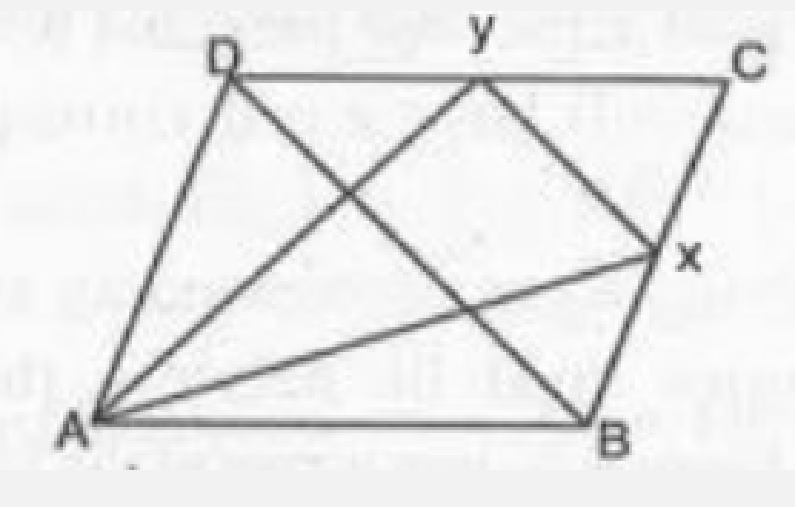
21. ABCD is parallelogram. X and Y are the mid-points of BC and CD respectively. Prove that ar $(\Delta AXY) = \frac{3}{8}$ ar $(||^{gm})ABCD$.



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22. P,Q,R and S are the mid-poins of the sides AB,BC,CD and DA respectively of quad. ABCD. Show that PQRS is a parallelogram such that $ar(||gmPQRS) = \frac{1}{2}ar(.ABCD)$

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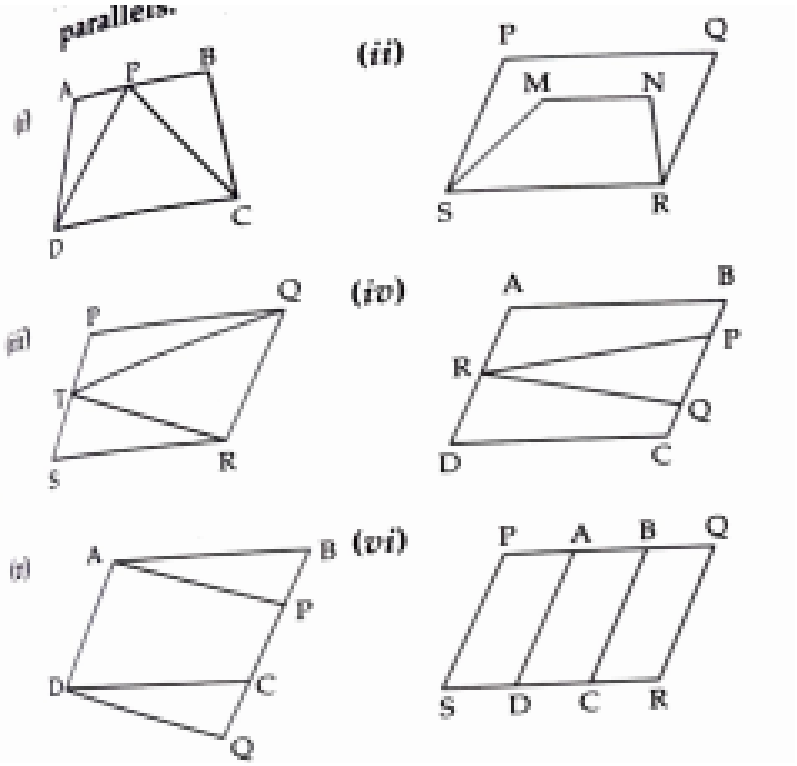
23. Which of the following figures lie on the same base and between the same parallels. Insuch a case, write the

common base and the two parallels.



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24. ABCD is a parallelogram, $AE \perp DC$ and $CF \perp AD$. If AB = 16 cm, AE = 8 cm and CF = 10 cm, find AD.

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25. If E, F, G and H are respectively the mid-points of the sides of a parallelogram ABCD, show that ar(EFGH) $= \frac{1}{2}$ ar(ABCD).

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26. P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that ar (APB) = ar (BQC).

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27. In Fig.

 , P is a point in the interior of a parallelogram ABCD. Show that $ar(APB) + ar(PCD) = \frac{1}{2}ar(ABCD)$.

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28. In Fig.

 , P is a point in the interior of a parallelogram ABCD. Show that $ar(APD) + ar(PBC) = ar(APB) + ar(PCD)$.

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29. In fig.

 PQRS and ABRS are parallelograms and X is any point on side BR. Show that $ar(PQRS) = ar(ABRS)$.

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30. In fig.

 PQRS and ABRS are parallelograms and X is any point on side BR. Show that $ar(AXS) = \frac{1}{2}ar(PQRS)$.

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31. A farmer was having a field in the form of a parallelogram PQRS. She took any point A on RS and

joined it to points P and Q.In how many parts the field is divided ? What are the shapes of these parts ? The farmer wants to sow wheat and pulses in equal portions of the field separately. How should she do it ?

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32. E is any point on median AD of a $\triangle ABC$. Show that ar (ABE) = ar (ACE).

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33. ABC is a triangle in which D is the mid-point of BC and E is the mid-point of AD. Prove that: $ar(\triangle BED) = \frac{1}{4}ar(\triangle ABC)$

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34. A diagonal of parallelogram divides it into four triangles of equal area.

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35. D, E and F are respectively the mid-points of the sides BC, CA and AB of a $\triangle ABC$. Show that:- BDEF is a parallelogram.

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36. If D, E, f are the mid-point of the sides of triangle ABC, prove that : $ar(\triangle DEF) = \frac{1}{4}ar(\triangle ABC)$.

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37. D, E and F are respectively the mid-points of the sides BC, CA and AB of a $\triangle ABC$. Show that:- BDEF is a parallelogram.

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38. Diagonals AC and BD of a quadrilateral ABCD intersect at O in such a way that ar (AOD) = ar (BOC). Prove that ABCD is a trapezium.

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39. Diagonals AC and BD of quadrilateral ABCD interset at O such that OB = OD , If AB = Cd, then show that : $ar(DCB) = ar(ACB)$

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40. Diagonals AC and BD of a quadrilateral ABCD intersect at O in such a way that ar (AOD) = ar (BOC). Prove that ABCD is a trapezium.

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41. D and E are points on sides AB and AC respectively of ΔABC such that ar (DBC) = ar (EBC). Prove that $DEIIBC$.

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42. XY is a line parallel to side BC of triangle ABC. If $BEIIAC$ and $CFIIAB$ meet XY at E and F respectively,show that ar (ABE) = ar (ACF).

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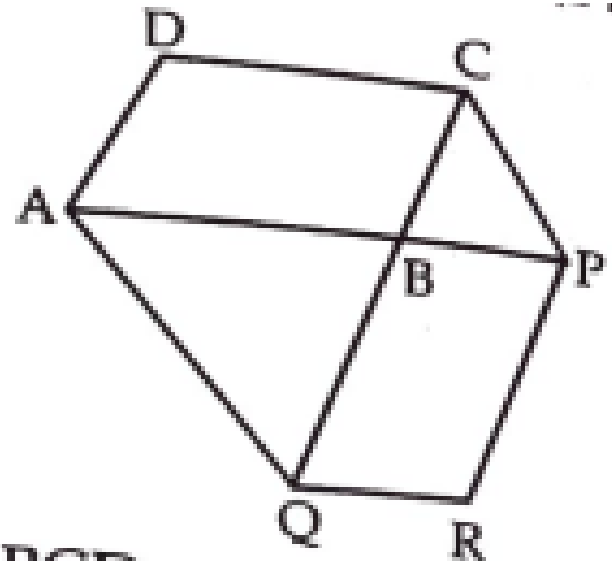
43. The sides AB of parallelogram ABCD produced to any point P. A line through A and parallel to CP meets CB

produced at Q and the parallelogram PBQR is completed



Show that

ar(ABCD) = ar(PBQR)

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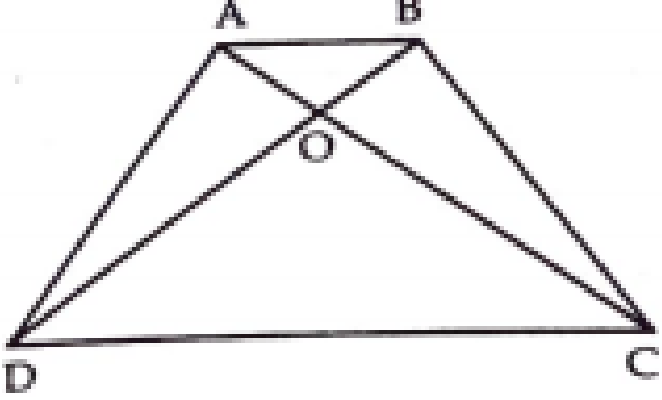
44. In the figure. ABCD in a trapezium in which AB||DC. Proe that $ar(\triangle AOD) = ar(\triangle BOC)$



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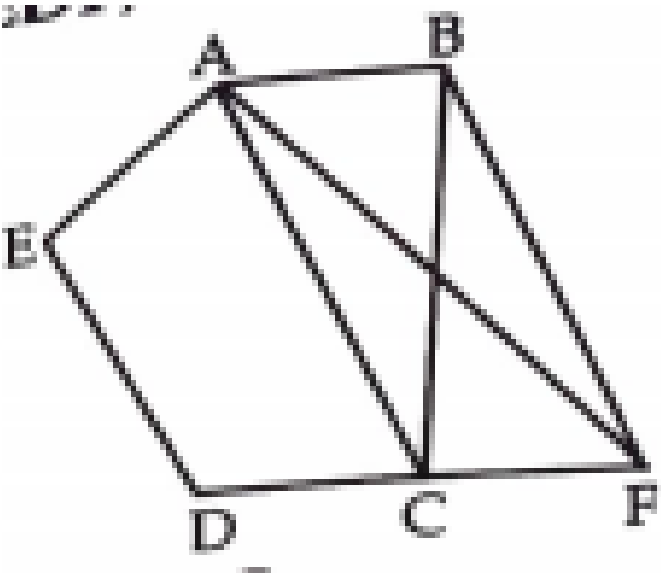
45.



ABCDE is a pentagon. A line through B parallel to AC meets DC

produced at F. Show that:

ar(ACB) = ar(ACF)

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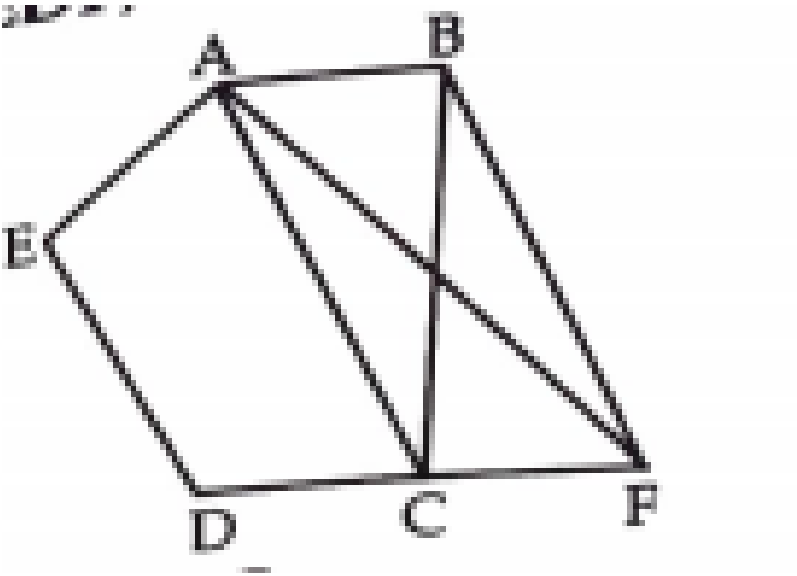
46.



ABCDE is a pentagon. A line through B parallel to AC meets DC produced at F. Show that:

ar(AEDF) = ar(ABCDE)

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47. ABCD is a trapezium with AB || DC. A line parallel to AC intersects AB at X and BC at Y. Prove that ar (ADX) = ar (ACY). [Hint : Join CX.]

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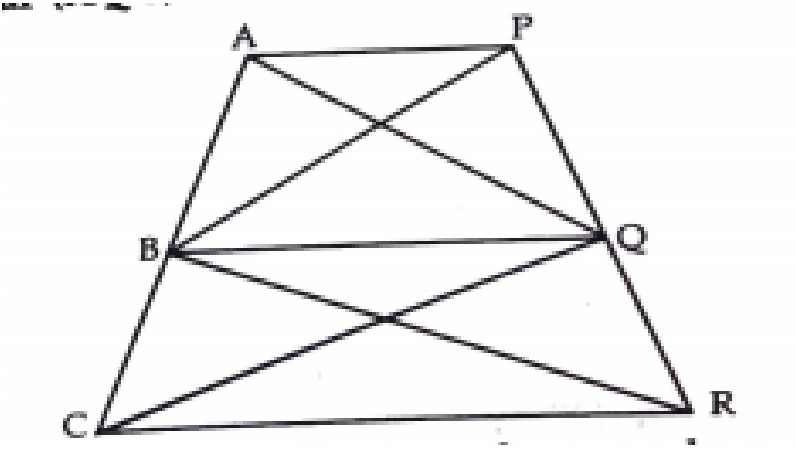
48. AP||BQ||CR. Prove that ar(AQC) = ar(PBR)



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49. Diagonals AC and BD of a quadrilateral ABCD intersect at O in such a way that ar (AOD) = ar (BOC). Prove that ABCD is a trapezium.

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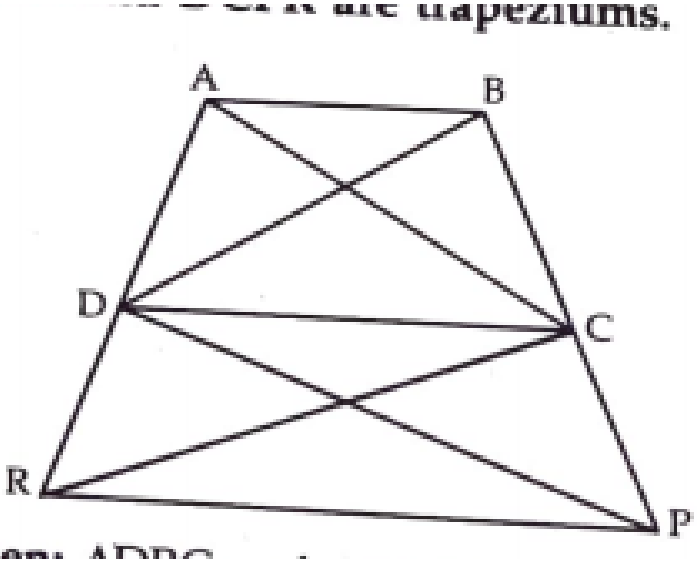
50.



ar(DRC) =

ar(DPC) and ar(BDP) = ar(ARC). Show that both the quadrilaterals ABCD and DCPR are trapeziums.

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51. Parallelogram ABCD and rectangle ABEF are on the same base AB and have equal areas. Show that the perimeter of the parallelogram is greater than that of the rectangle.

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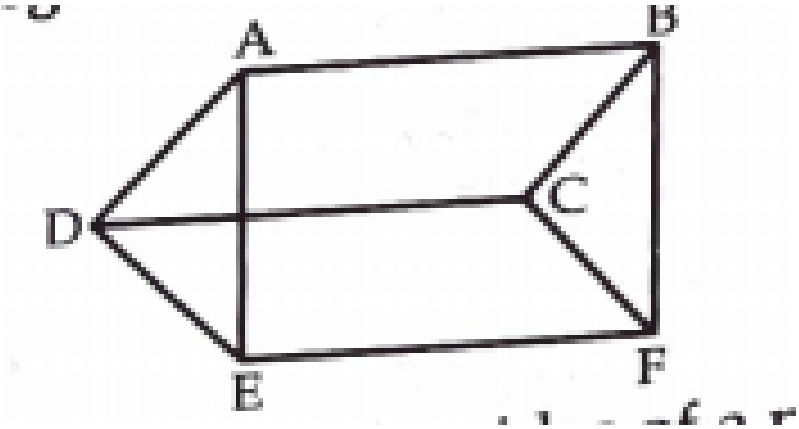
52.



ABCD, DCFE and ABFE are parallelograms. Show that ar(ADE) = ar(BCF)

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53. ABCD is a parallelogram and BC is produced to a point Q such that AD = CQ. If AQ intersect DC at P, show that: ar(BPC) = ar(DPQ)

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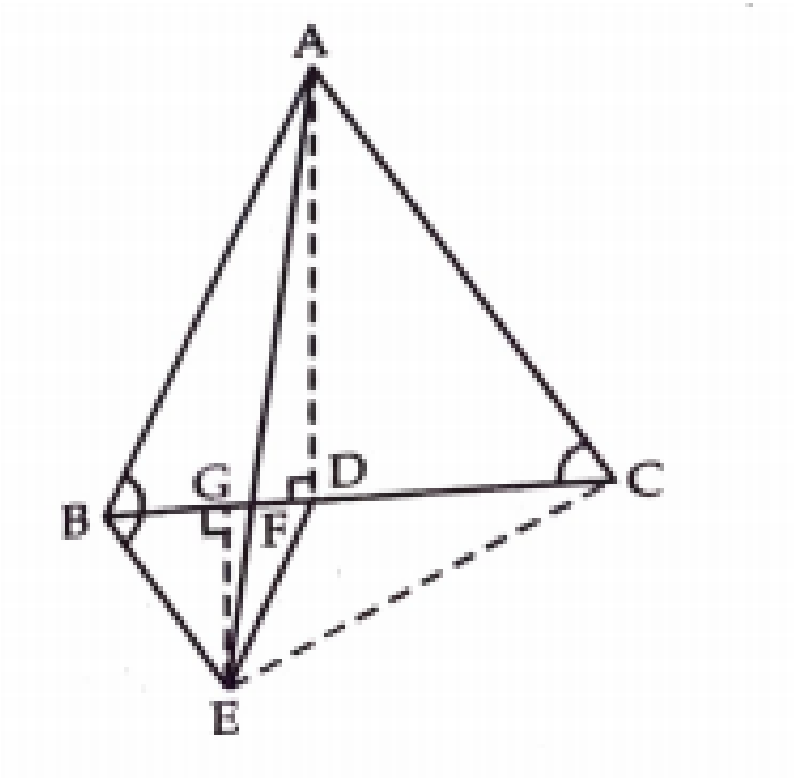
54.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(BDE) = $\frac{1}{4}$ ar(ABC)

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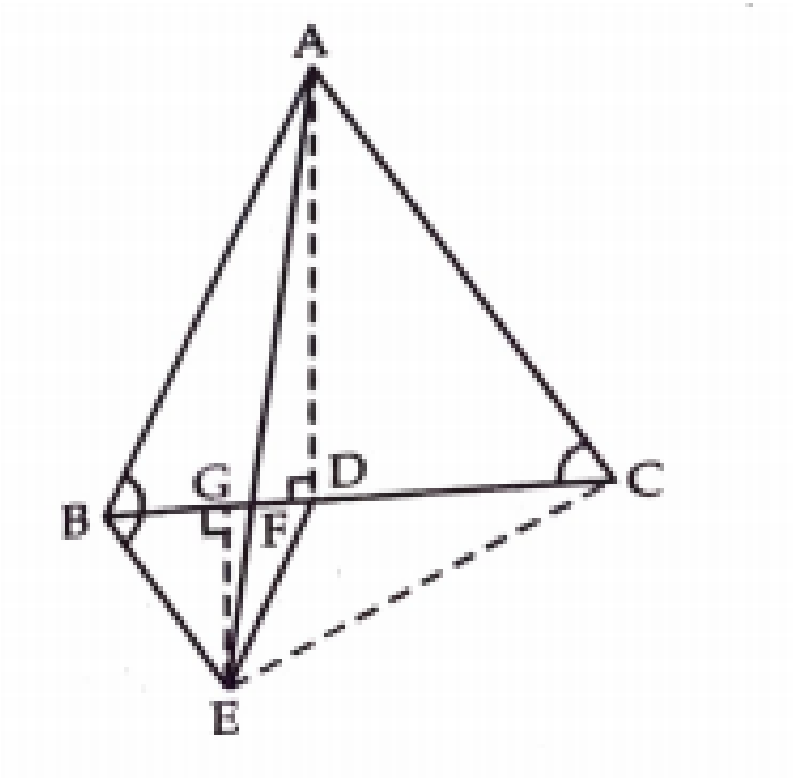
55.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(BDE) = $\frac{1}{2}$ar(BAE)`

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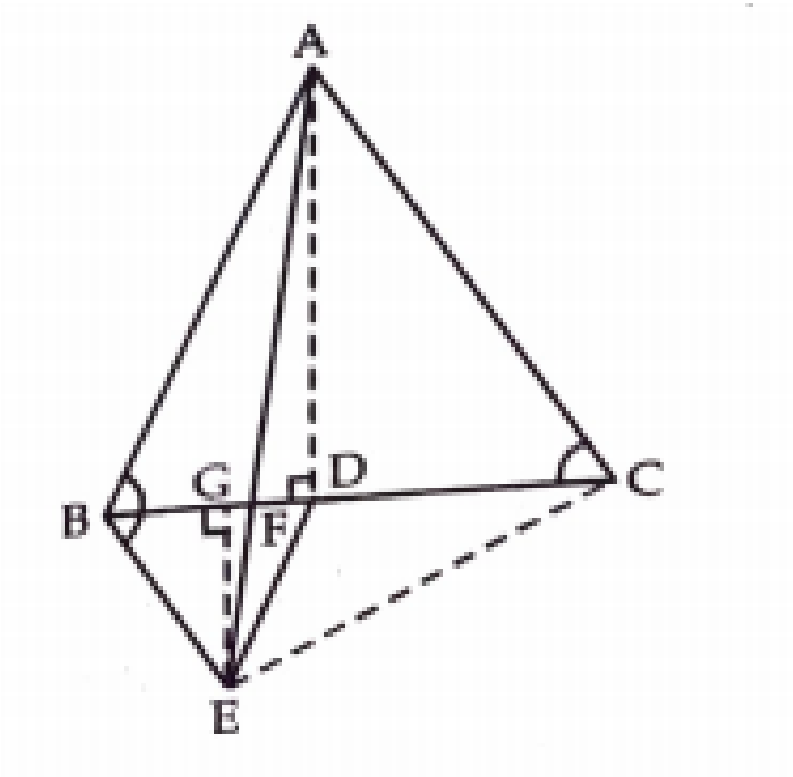
56.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(ABC) = 2ar(BEC)

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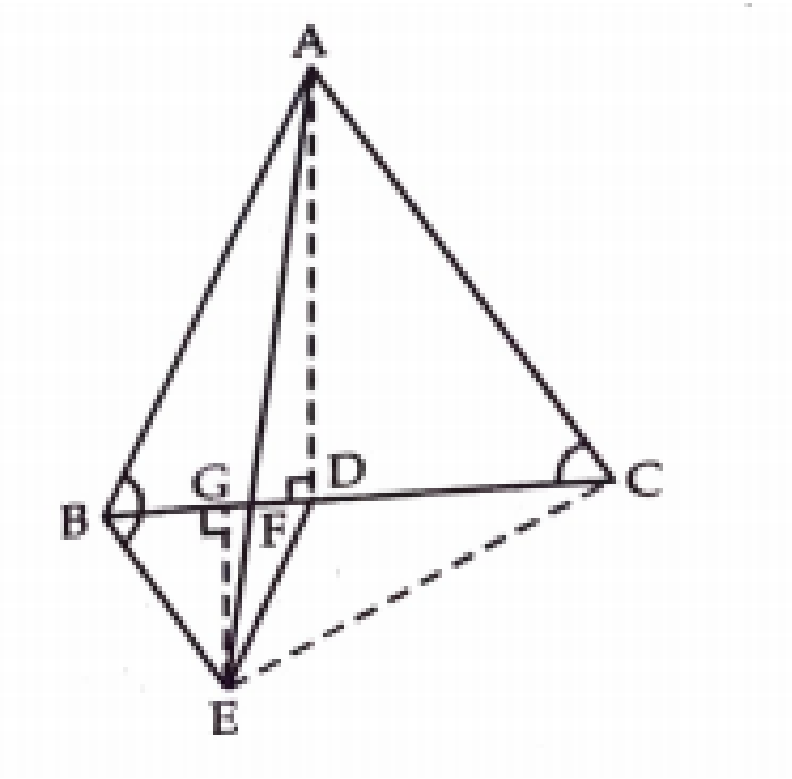
57.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(BFE) = ar(AFD)

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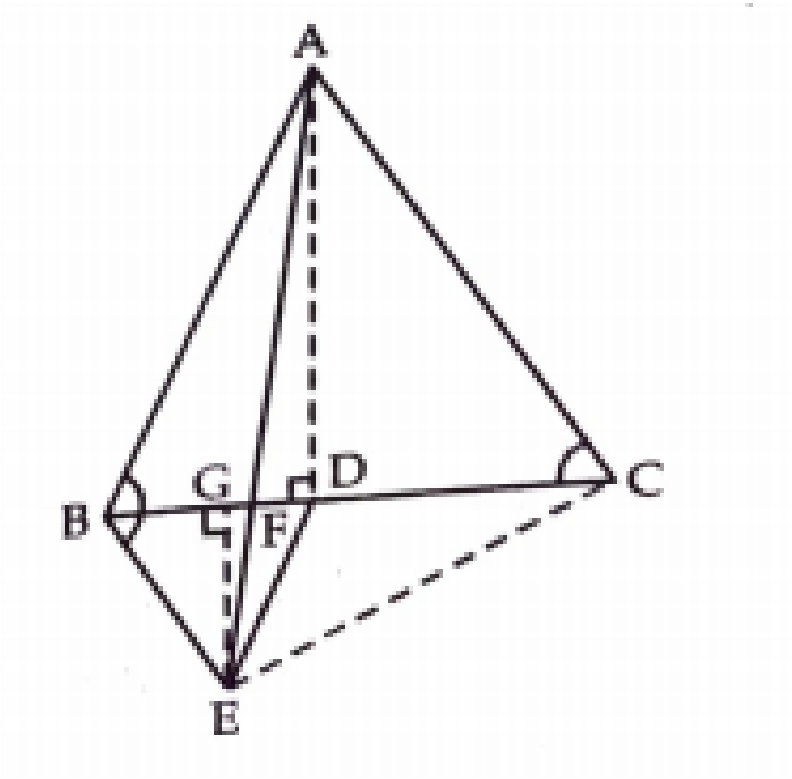
58.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(BFE) = 2ar(FED)

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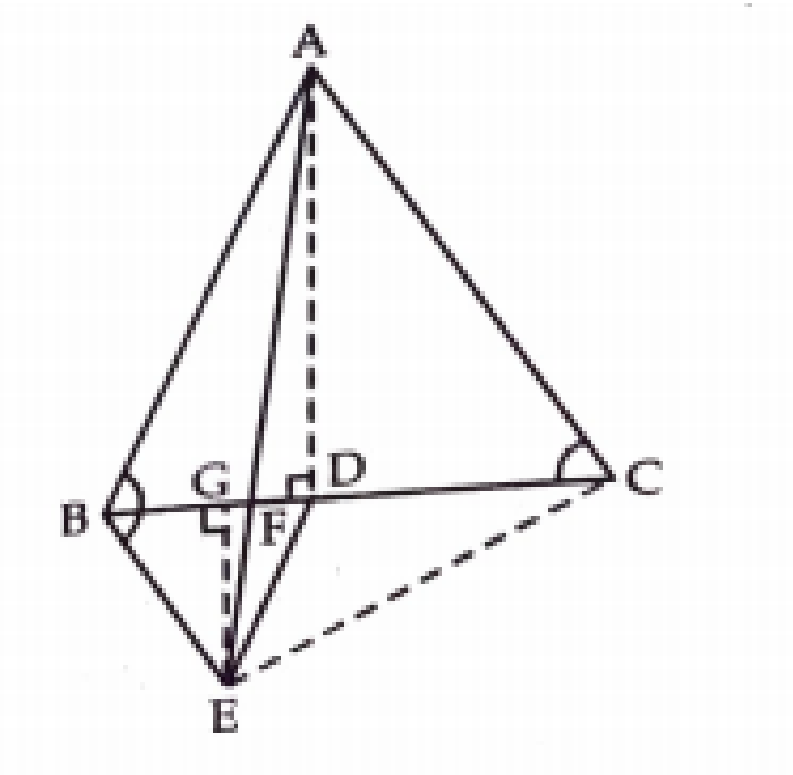
59.



ABC and BDE are two equilateral triangles such that D is the mid-point of BC. If AE interesects BC at F, show that :

ar(FED) = $\frac{1}{8}$ar(AFC)

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60. Diagonals AC and BD of quadrilateral ABCD intersect each other at P. Show that ar $(APB) \times ar(CPD)$ = ar $(APD) \times ar(BPC)$.

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61. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show ar(PRQ)=$\frac{1}{2}$ ar(ARC).

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62. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show

ar(RQC) = $\frac{3}{8}$ ar(ABC).

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63. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show ar(PBQ)=ar(ARC).

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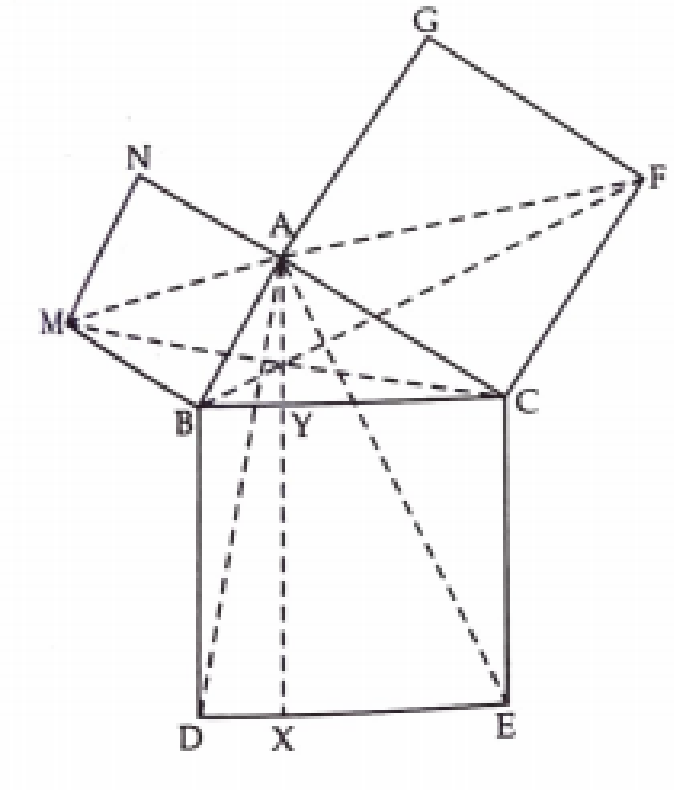
64.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

$\triangle MBC \cong \triangle ABD$

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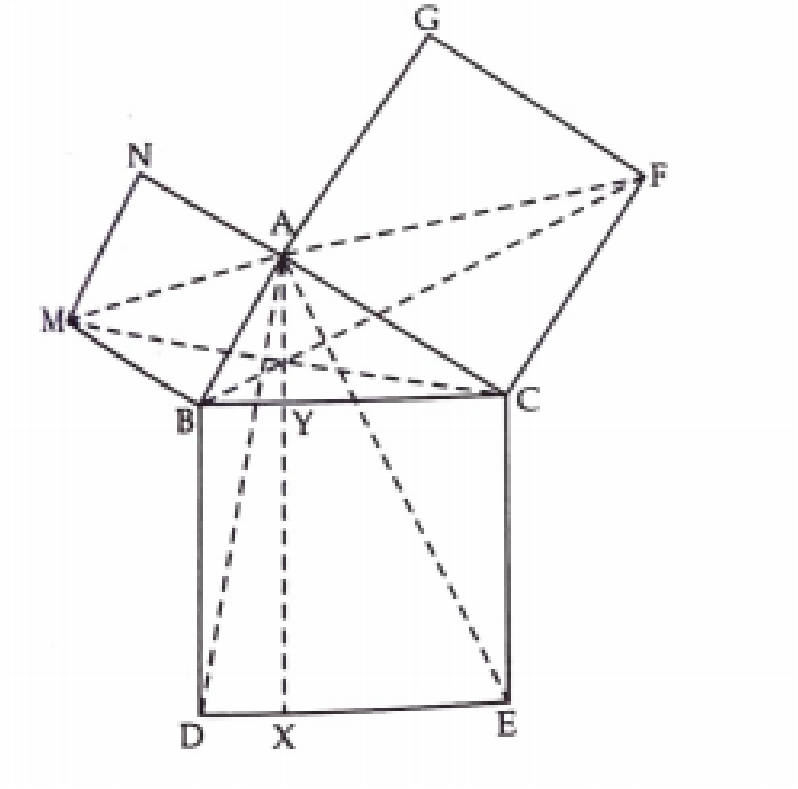
65.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

ar(BYXD) =2ar(MBC)

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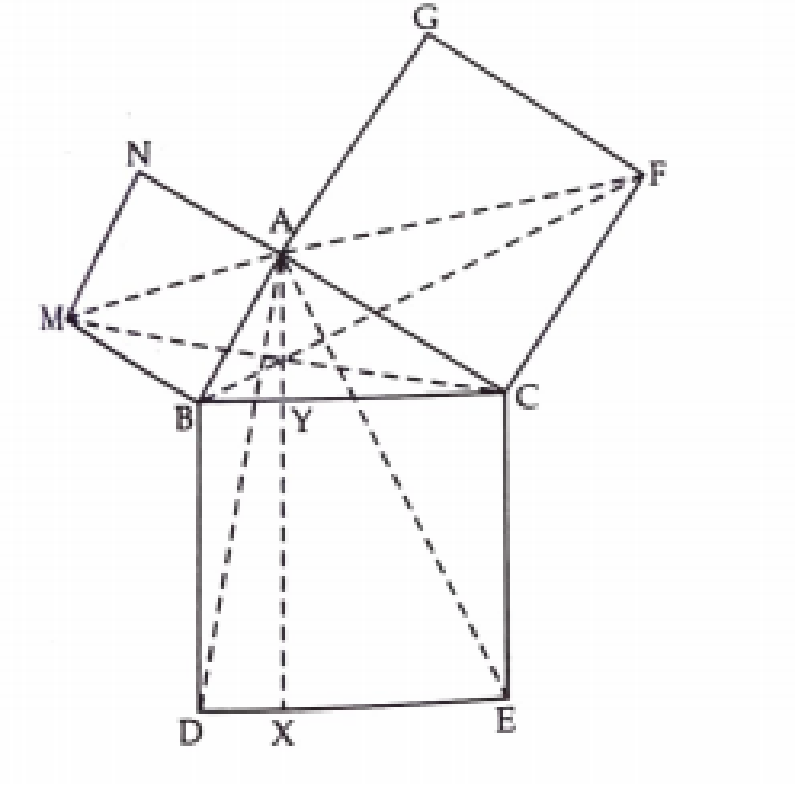
66.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

ar(BYXD) = ar(ABMN)

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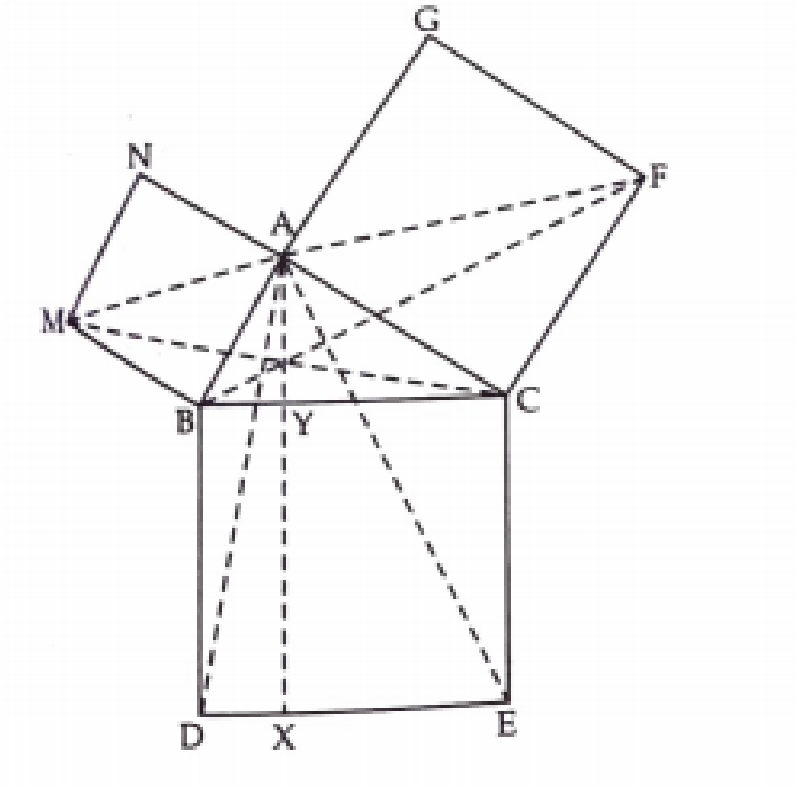
67.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line

segent AX $\perp$ DE meets BC at Y. Show that:

$\triangle FCB \cong \triangle ACE$

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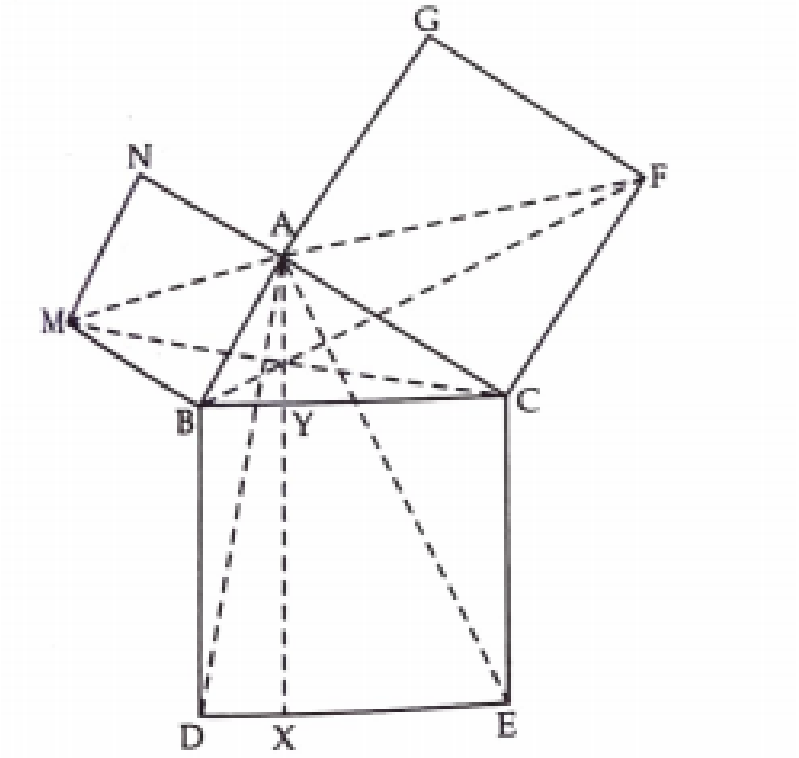
68.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are

squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

ar(CYXE) = 2ar(FCB)

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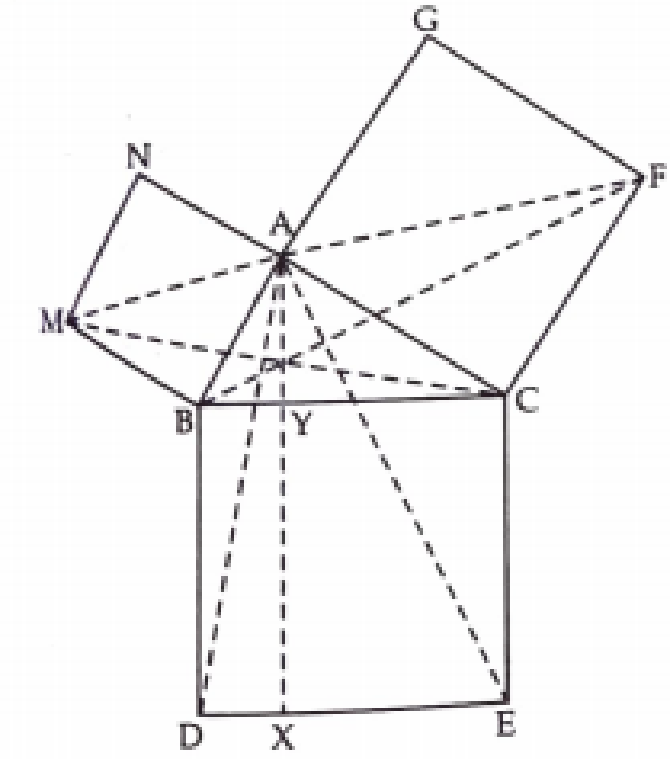
69.



ABC is a

right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

ar(CYXE) = ar(ACFG)

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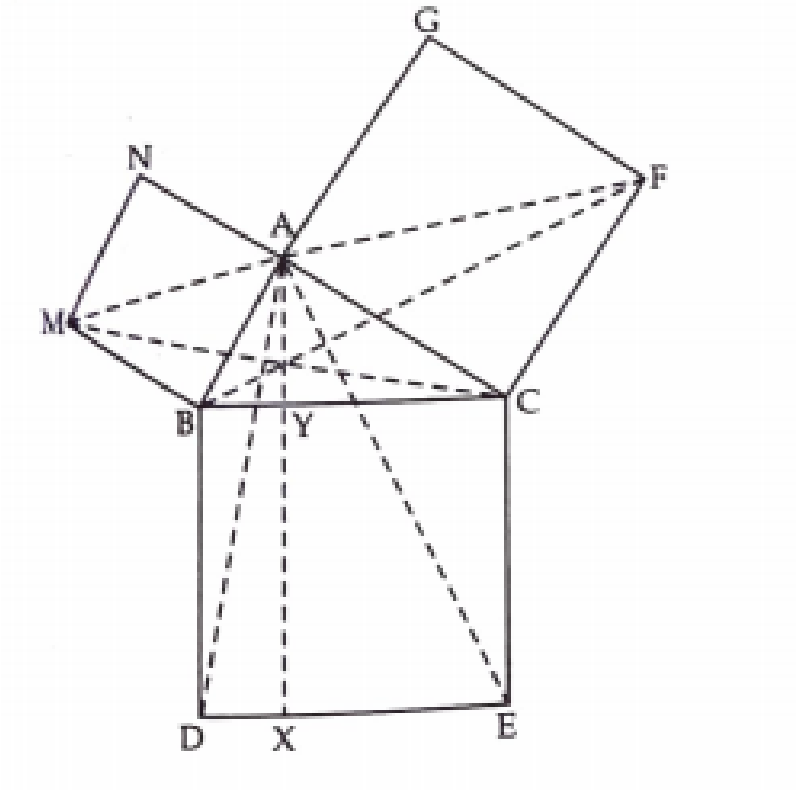
70.



ABC is a right triangle right angled at A. BCED, ACFG and ABMN are squares on the sides BC, CA and AB respectively. Line segent AX $\perp$ DE meets BC at Y. Show that:

ar(BCED) = ar(ABMN) + ar (ACFG)

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71. ABCD is a parallelogram and X is the mid-point of AB. If ar (AXCD) = $24cm^2$, then ar (ABC) = $24cm^2$.

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72. PQRS is a rectangle inscribed in a quadrant of a circle of radius 13 cm. A is any point on PQ. If PS = 5 cm, then ar (PAS) = $30cm^2$.

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73. PQRS is a parallelogram whose area is $180cm^2$ and A is any point on the diagonal QS. The area of

$\Delta ASR = 90cm^2$.

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74. ABC and BDE are two equilateral triangles such that D is the mid-point of BC. Then ar (BDE)=$\frac{1}{4}$ ar(ABC).

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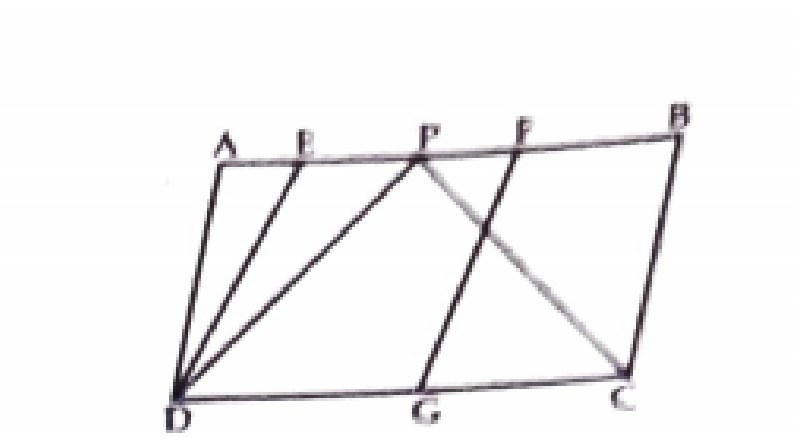
75. In the figure



ABCD and

EFGD are two parallelograms and G is the mid-point of CD.

Then ar(DPC) = $\frac{1}{2}$ ar(EFGD)

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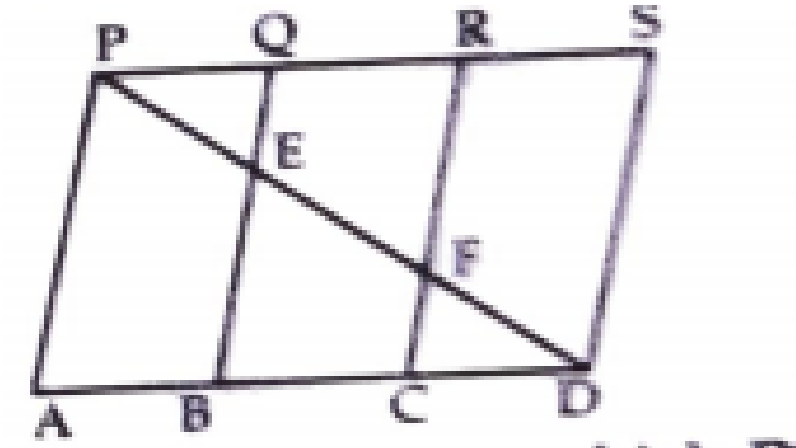
76. In the figure



PSDA is a parallelogram. Points Q and R are taken on PS such that PQ = QR = RS and PA||QB||RC. Prove that: $ar(\triangle PQE) = ar(\triangle CFD)$

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77. X and Y are points on the side LN of the triangle LMN such that LX = XY = YN. Through X, a line is drwan parallel to LM to meet MN at Z. Prove that are (LZY) = ar(MZYX)

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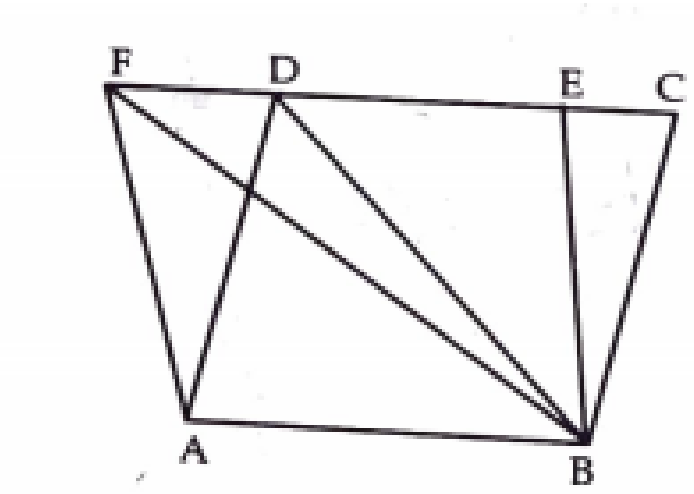
78. The area of the parallelogram ABCD is $90cm^2$



Find ar(ABEF)

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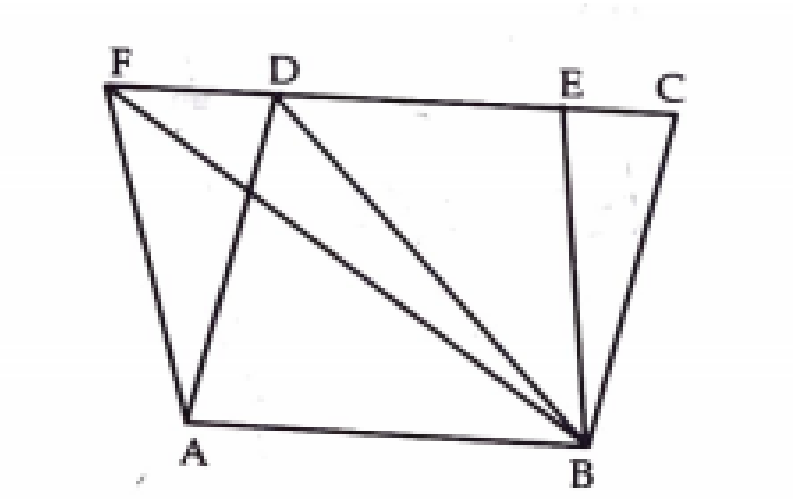
79. The area of the parallelogram ABCD is $90cm^2$



Find ar(ABD)

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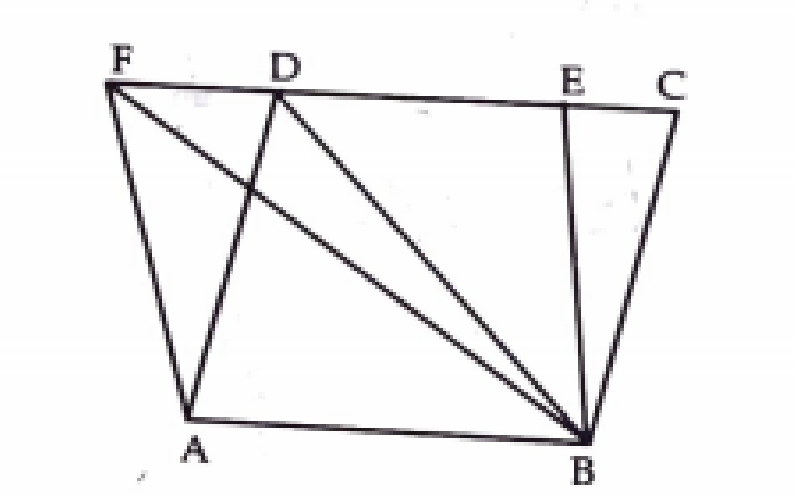
80. The area of the parallelogram ABCD is $90cm^2$



Find ar(BEF)

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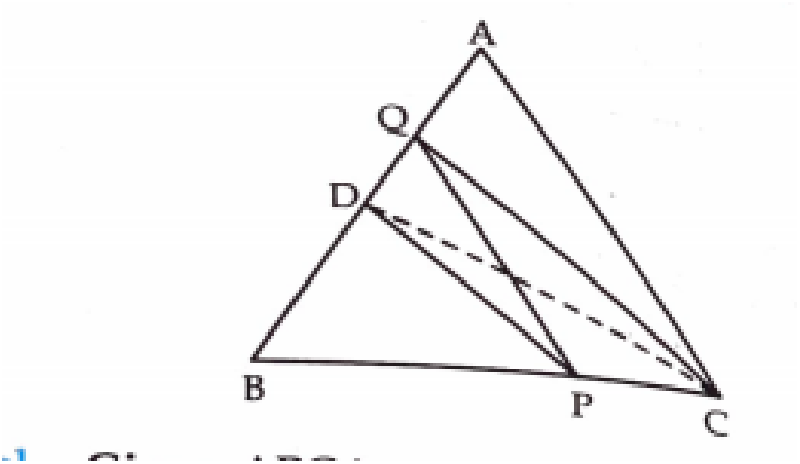
81. In $\triangle ABC$, D is the mid-point of AB and P is point on BC. If CQ||PD meets AB in Q then prove that :

$ar(BPQ) = \frac{1}{2}ar(ABC)$



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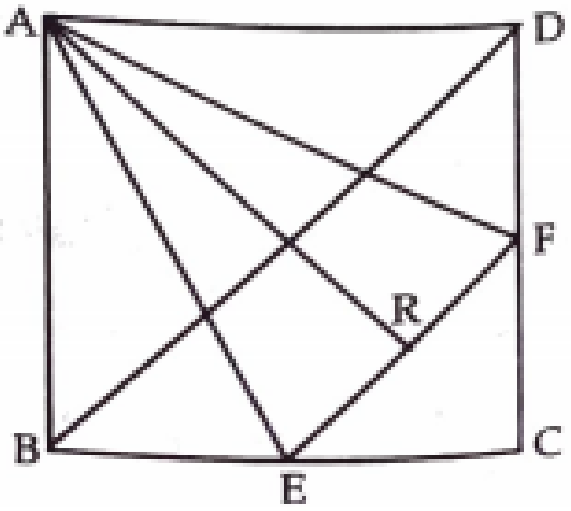
82. ABCD is a squre. E and F are respectivley the mid-points of BC and CD. If R is the mid-points of EF. Prove that ar

(AER) = ar(AFR).



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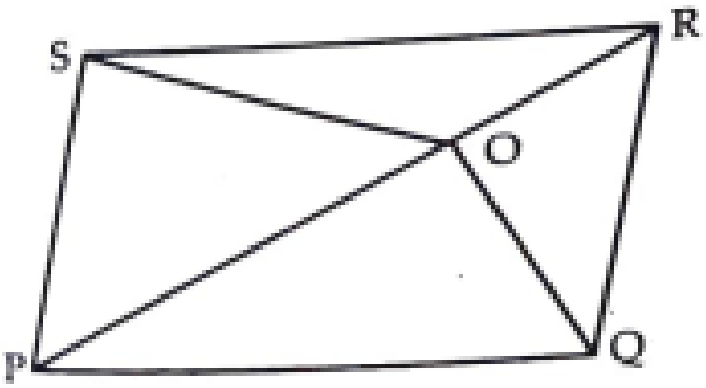
83. O is any point on the diagonal PR of a parallelogram PQRS. Prove that : ar(PSO) = ar(PQO)



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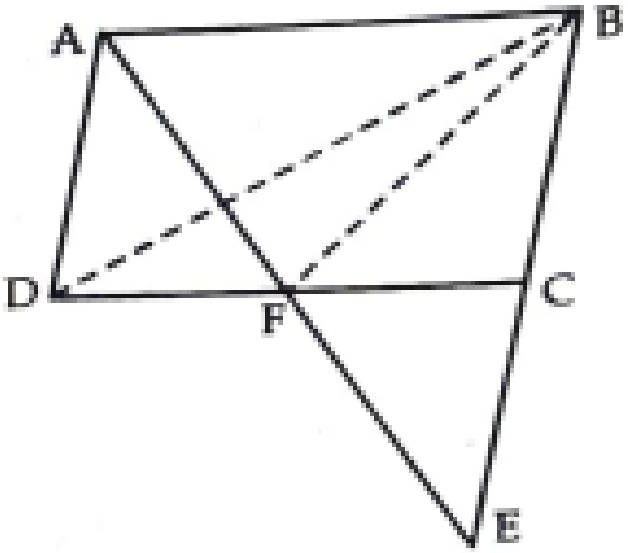
84. ABCD is a parallelogram in which BC is produced to E such that CE =BC.



AE intersects CD at F. If ar(DFB) = $3cm^2$, find the area of the parallelogram ABCD.

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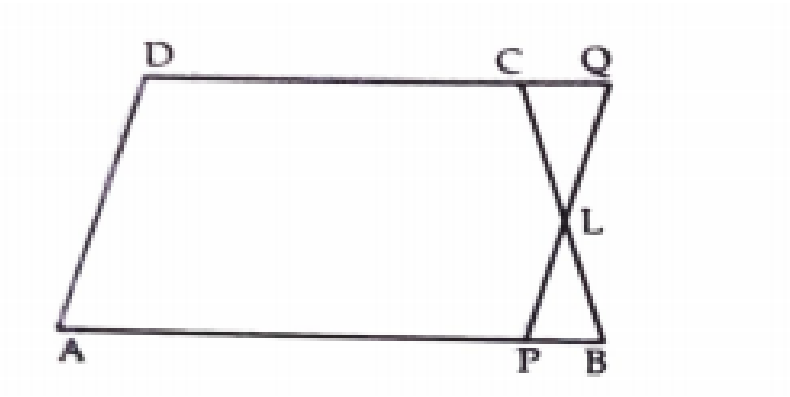
85. In trapezium ABCD, AB ||DC and L is the mid-point of BC. Through AL, a line PQ||AD has been drawn which meets AB at P and DC produced to Q. Prove that : ar(ABCD) =

ar(APQD)



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86. If the mid-point of the sides of a quadrilateral are joined in order, prove that the area of the parallelogram so formed will be half of the area of the given quadrilateral.

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87. A point is taken on the side BC of a parallelogram ABCD. AE and DC are produced to meet at F. Prove that : ar(ADF) = ar(ABFC)

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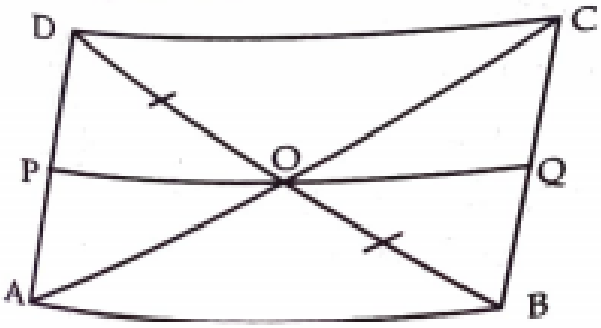
88. The diagonals of a parallelogram ABCD intersect at a point O. Through O, a line is drawn to intersect AD at P and BC to Q. show that PQ divides the parallelogram into two parts of equal area.



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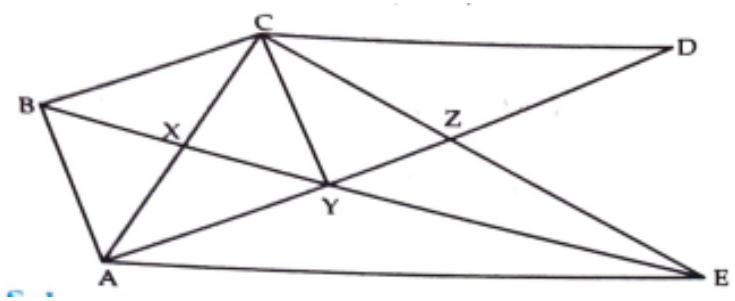
89. The medians BE and CF of a triangle ABC interesct at G. Prove that the area of $\triangle GBC$= area of the quadrilateral AFGE.

Watch Video Solution

90. In the figure



CD||AE and CYA||BA. Prove that : ar(CBX) = ar(AXY)

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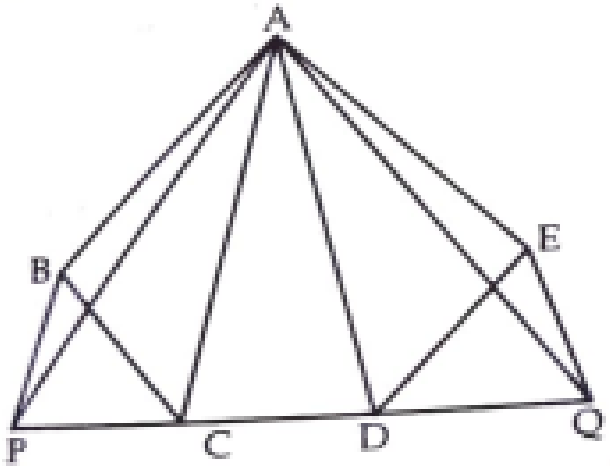
91. ABCD is a trapezium in which AB||DC, DC = 30 cm and AB = 50 cm. If X and Y are, respectivley that mid-points of AD and BC, prove that $ar(DCYX) = \frac{7}{9}ar(XYBA)$

Watch Video Solution

92. In $\triangle ABC$, if L and M are the points on AB AC, respectivley such that LM||BC. Prove that ar(LOB) = ar(MOC)

Watch Video Solution

93. In the figure



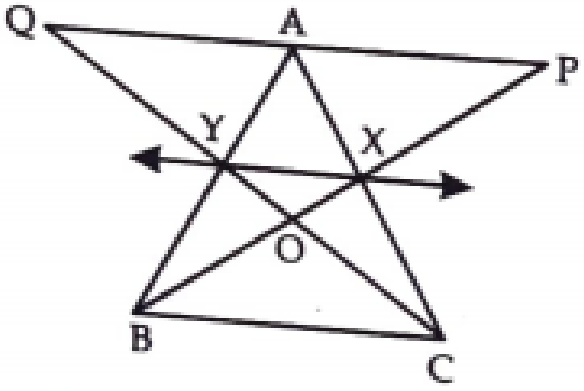
ABCDE is any pentagon. BP drawn parallel to AC meets DC produced at P and EQ drawn parallel to AD meets CD produced at Q. Prove that : ar(ABCDE) = ar(APQ)

Watch Video Solution

94. If the medians of a $\triangle ABC$ intersect at G, show that $ar(AGB) = ar(AGC) = ar(BGC) =$ 1/3`ar(ABC)

Watch Video Solution

95. In the figure



X and Y are the mid-points of AC and AB respectivley, QP||BC and CYQ and BXP are striaght lines. Prove that ar(ABP) = ar(ACQ)

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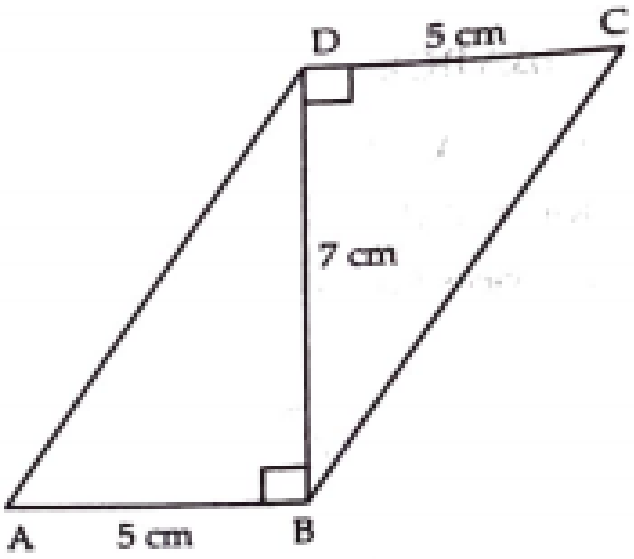
Exercise

1. In the figure. Show that ABCD is a parallelogram.



Calculate the area of ||gm ABCD.

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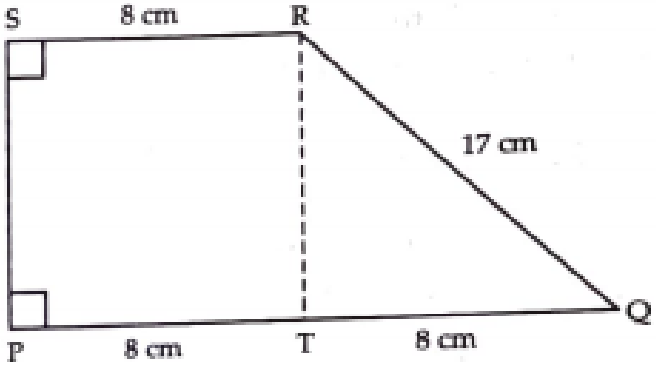
2. Find the area of a rhombus whose diagonals are of lengths 10 cm and 8.2 cm.

Watch Video Solution

3. Calculate the area of trap. PQRS, given in the figure.



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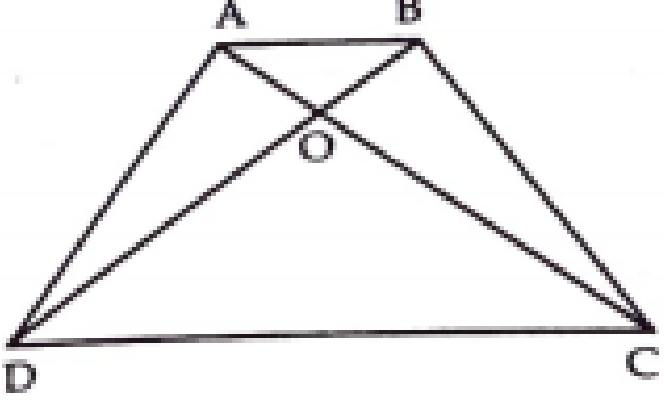
4. In the figure. ABCD in a trapezium in which AB||DC. Proe that $ar(\triangle AOD) = ar(\triangle BOC)$



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5. In a quad. ABCD it is given that BD = 16 cm. If $AL \perp BD$ and $CM \perp BD$ such that AL = 9 cm and CM = 7 cm, then ar(quad. ABCD) = ?

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6. ABCD is a parallelogram whose diagonals intersect at E. AC is produced to F such that CF = AE Prove that ar (ΔBDF) = ar ($||$ $gmABCD$).

Watch Video Solution

7. ABCD is a parallelogram whose diagonals intersect at E. AC is produced to F such that CF = AE Prove that ar (ΔBDF) = ar ($||$ $gmABCD$).

Watch Video Solution

8. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show

ar(PBQ)=ar(ARC).

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9. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show ar(PRQ)=$\frac{1}{2}$ ar(ARC).

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10. P and Q are respectively the midpoints of sides AB and BC or a triangle ABC and R is the mid-point of AP, show ar(RQC) = $\frac{3}{8}$ ar(ABC).

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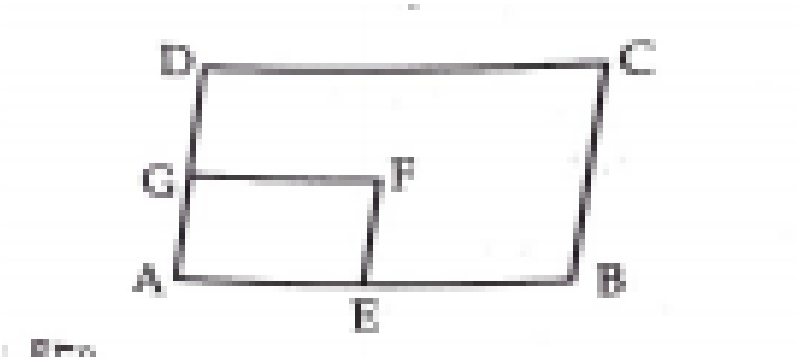
11. In fig. ABCD and AEFG are two parallelograms. If $\angle C = 55^\circ$ and determine $\angle F$



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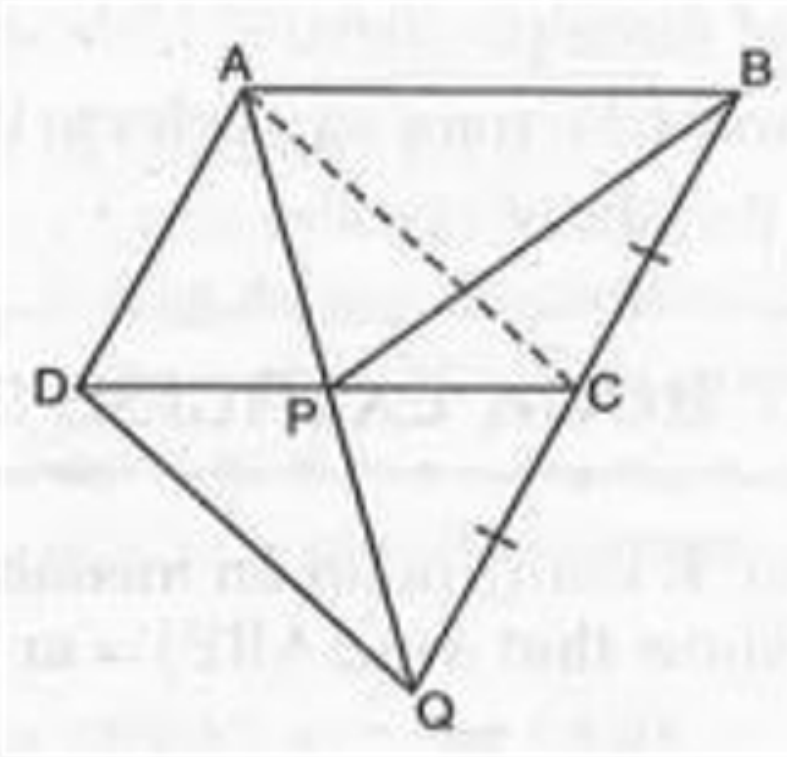
12. ABCD and AEFD are two parallelograms Prove that:

$ar(\triangle APE) : ar(\triangle PFA) = ar(\triangle QFD) : ar(\triangle PFD)$

Watch Video Solution

13. In Fig.



ABCD is a parallelogram. Prove that ar (ΔACP) = ar (ΔDPQ).

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14. In $\triangle ABC$, it L and M are points on AB and AC respectively such that LM||BC. Prove that :

$ar(\triangle LCM) = ar(\triangle LBM)$

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15. In $\triangle ABC$, it L and M are points on AB and AC respectively such that LM||BC. Prove that :

$ar(\triangle LBC) = ar(\triangle MBC)$

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16. D and E are points on sides AB and AC respectively of ΔABC such that ar (DBC) = ar (EBC). Prove that $DEIIBC$

.

Watch Video Solution

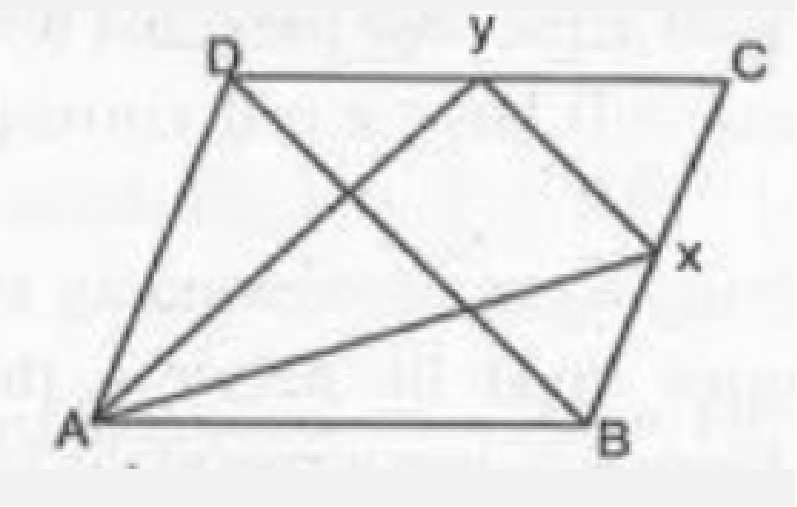
17. D and E are points on sides AB and AC respectively of ΔABC such that ar (DBC) = ar (EBC). Prove that $DEIIBC$

.

Watch Video Solution

18. ABCD is parallelogram. X and Y are the mid-points of BC and CD respectively. Prove that ar $(\Delta AXY) = \frac{3}{8}$ ar

$(\ |\ |\ )^{gm} ABCD.$



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19. PQRS and PABC are two parallelograms of equal area. Prove that $QC\ |\ |\ BR$

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20. Two parallelograms ABCD and AEFB are drawn on opposite sides of AB. Prove that $ar(||gmABCD) + ar(||gmAEFB) = ar(||gmEFCD)$

Watch Video Solution

21. A man who had a plot in the shape of a parallelogram divided it into three equal parts and gave one-thrid part ot his son which again was in the shape of a parallelogram. The son seeing that there was no school in the village ecides to open a school there. Answer the following questions:

Show how could this decision of the man be implemented.

What part did the son get? Explain with figure.

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22. A man who had a plot in the shape of a parallelogram divided it into three equal parts and gave one-third part to his son which again was in the shape of a parallelogram. The son seeing that there was no school in the village he decides to open a school there. Answer the following questions:

Was the son's decision right?

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23. A man who had a plot in the shape of a parallelogram divided it into three equal parts and gave one-third part to his son which again was in the shape of a

parallelogram. The son seeing that there was no school in the village he decides to open a school there. Answer the following questions:

Was the son's decision right?

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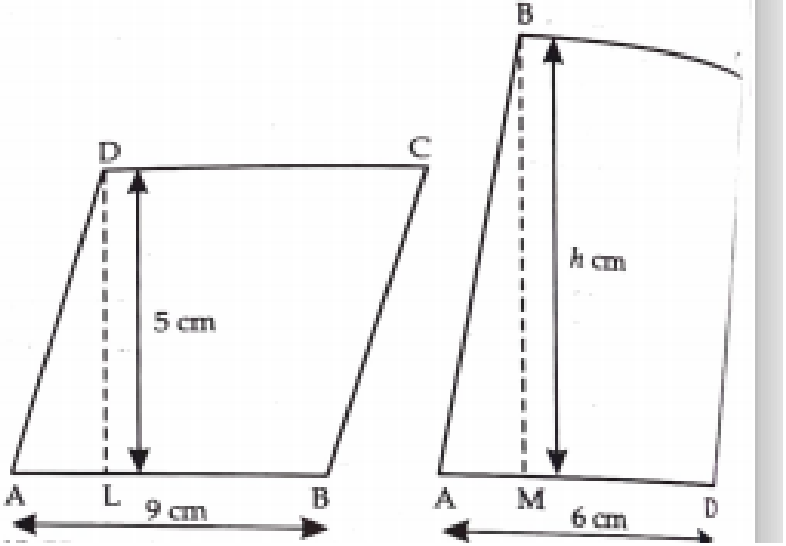
24. In a class, the teacher gave two simiar cardboard pieces which are in the shape of parallelogram to two groups. First group was asked find area of parallelogram,having AB as base. Another group was asked to find the height (h) of parallelogram having AD as base.



What values are depicted?

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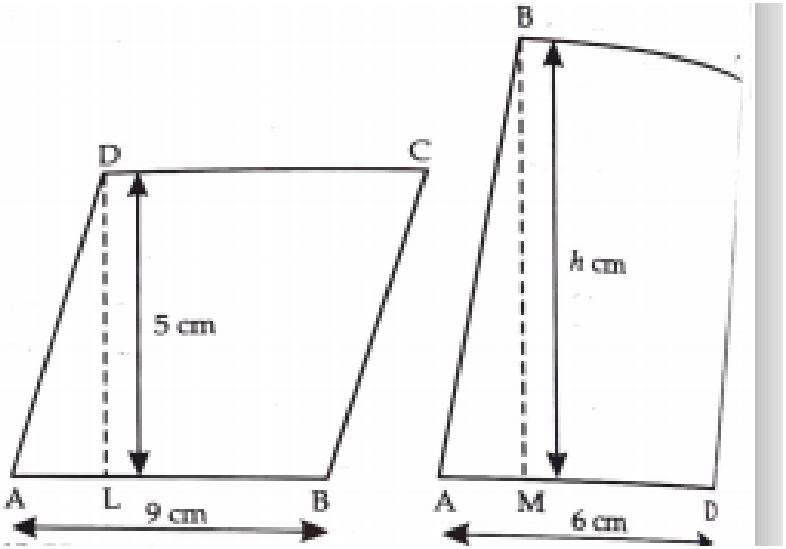
25. In a class, the teacher gave two simiar cardboard pieces which are in the shape of parallelogram to two groups. First group was asked find area of parallelogram,having AB as base. Another group was asked to find the height (h) of parallelogram having AD as

base.



What values are depicted?

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26. If ar(||gm ABCD) = $252cm^2$, then find the area of $\triangle ADB$?

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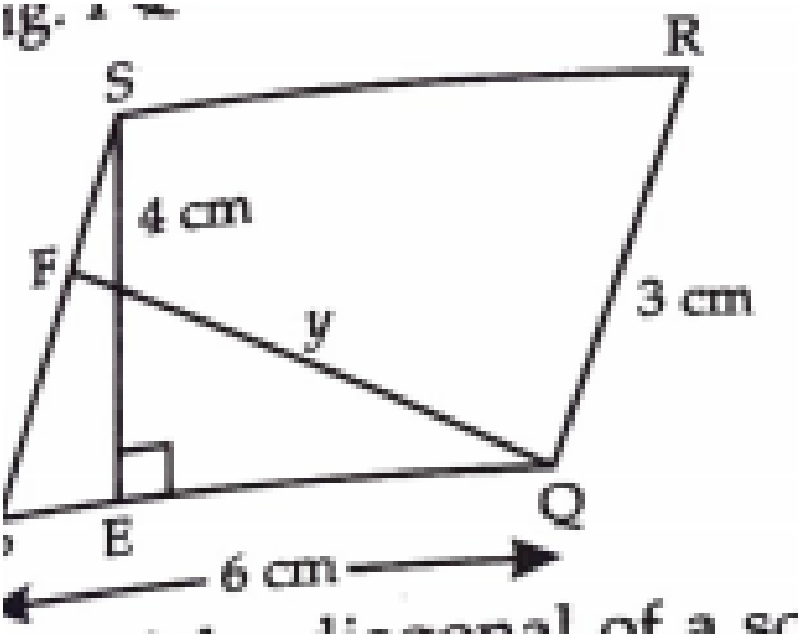
27. In the figure.



PQRS is a ||gm. Find the value of y.

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28. If the length of the diagonal of a square is 8 cm, then find its area.

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29. The figure obtained by joining the midpoints of the adjacent sides of a rectangle of sides 8 cm and 6 cm is :

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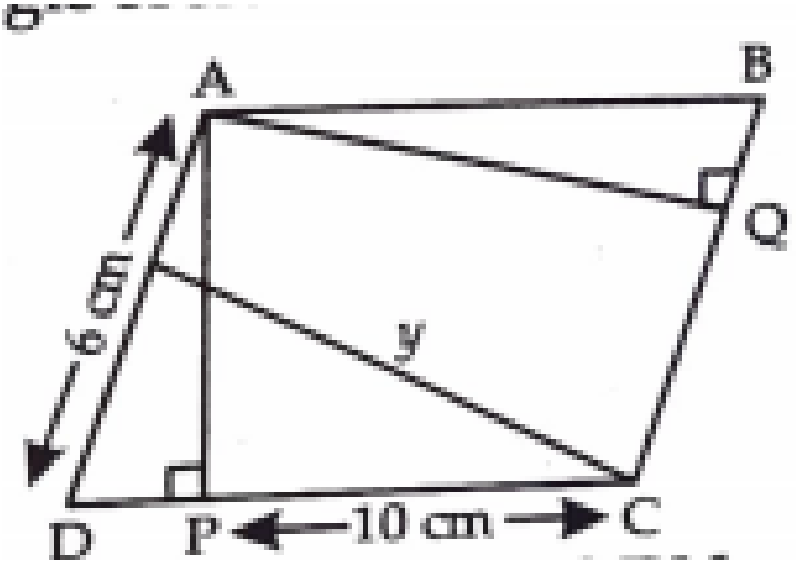
30. If the area of a parallelogram ABCD is $30cm^2$, then find the length of altitude AQ?



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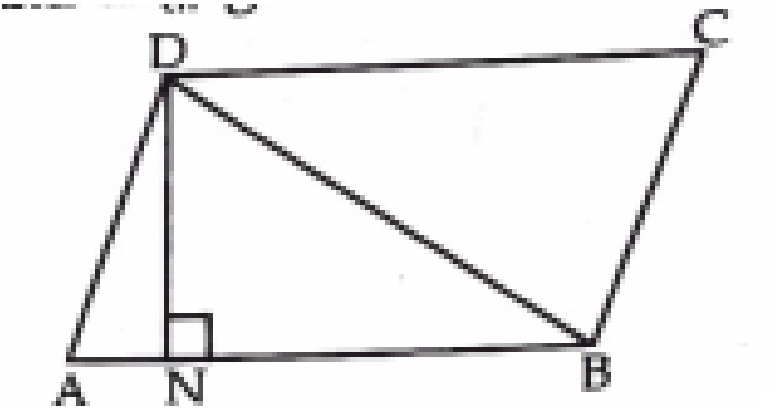
31. In the figure.



ABCD is a ||gm and DN $\perp$ AB. If AB = 10 cm and DN = 4cm . Find ar(||gm ABCD) are ar($\triangle ABD$)

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32. ABCD is a rhombus AC = 8 cm, and DB = 6 cm. Find the length of BC.

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33. If ABC and BDE are two equilateral triangles such that D is the mid-point of BC, then find $ar(\triangle ABC) : ar(\triangle BDE)$

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34. P is any point on base BC of $\triangle ABC$ and D is the mid-point of the BC. DE is drawn parallel to PA to meet AC at E. If $ar(\triangle ABC) = 12cm^2$, then find area of $\triangle EPC$

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35. PQRS is a rectangle inscribed in a quadrant of a circle of radius 13 cm. A is any point on PQ. If PS = 5 cm, then ar (PAS) = $30cm^2$.

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36. True/False

Area of || gm= $\frac{1}{2}$ base $\times$ corresponding height.

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37. True/False

If the area of a || gm with one side 24 cm and corresponding height h cm is $192cm^2$, then h = 16 cm.

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38. True/False

If the diagonals of a rhombus are 14 cm and 18 cm, then its area is $126cm^2$

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39. Parallelogram on equal bases and between the same parallels are equal in area.

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40. True/False

Two parallelograms are on the same base and between the same parallels. The ratio of their areas is 1:2.

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41. ABCD is a parallelogram and X is the mid-point of AB. If ar (AXCD) = $24cm^2$, then ar (ABC) = $24cm^2$.

Watch Video Solution

42. True/False

If AD is the median of $\triangle ABC$ and P is a point on AC

such that $ar(\triangle ADP):ar(\triangle ABD)=2:3$, then $ar(\triangle PDC):ar(\triangle ABC)=1:3$

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43. True/False

In a $\triangle ABC$, D, E, F are the mid-points of the sides BC,CA and AB respectively. If $ar(\triangle ABC)=16cm^2$, then ar(trap FBCE) is $8cm^2$

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44. True/False

A,B,C,D are mid-points of sides of ||gm PQRS. If ar (PQRS) = $36cm^2$, then ar (ABCD) = $18cm^2$

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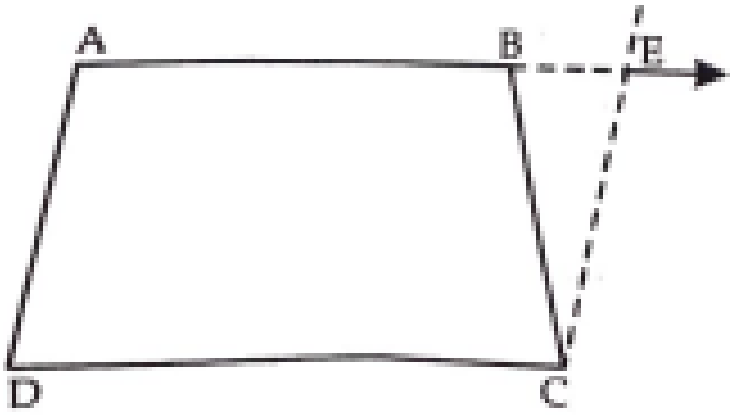
45. ABCD s a trapezium in which AB||CD and AD=BC



Show that: $\angle A = \angle B$

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46. Fill in the Blanks:

If R_1 and R_2 are two congruent regions, then area of R_1

is _____ are of R_2

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47. Fill in the Blanks:

A diagonal of || gm divides it into two triangles of _____ area.

Watch Video Solution

48. Fill in the Blanks:

Parallelogram on the _____ base and _____ the same parallels are equal in area.

Watch Video Solution

49. Fill in the Blanks:

The area of || gm is equal to the product of any of its sides and _____ altitude.

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50. Fill in the Blanks:

Ratio of areas of a triangle and a ||gm sharing the same base and between the same paralleles is _____

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51. Fill in the Blanks:

Area of triangle is _____ the product of any of its sides

and corresponding altitude.

Watch Video Solution

52. Fill in the Blanks:

Triangles with equal area and having any side of one equal to any side of the other have equal corresponding_____

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53. A diagonal of parallelogram divides it into four triangles of equal area.

Watch Video Solution

54. Show that the line segments joining the mid-points of opposite sides of a quadrilateral bisect each other.

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55. Fill in the Blanks:

The ratio of area of rectangle and a triangle sharing the same base and between the same _____ is 2:1

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56. The median of a triangle divides it into two

A. triangles of equal area

B. congruent triangles

C. right angles

D. isosceles triangles

Answer:

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57. Two parallelograms are on equal bases andbetween the same parallels. The ratio of their areas is

A. $1:2$

B. $1:1$

C. $2:1$

D. $3:1$

Answer:

Watch Video Solution

58. The median of a triangle divides it into two

A. congruent triangles

B. right triangles

C. isosceles triangles

D. triangles of equal areas

Answer:

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59. ABCD is a parallelogram. P is any point on CD. If $ar(\triangle DPA) = 15cm^2$ and $ar(\triangle APC) = 20cm^2$, the ar$(\triangle APB) =$

A. 1) $20cm^2$

B. 2) $15cm^2$

C. 3) $35cm^2$

D. 4) $30cm^2$

Answer:

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60. The figure obtained by joining the midpoints of the adjacent sides of a rectangle of sides 8 cm and 6 cm is :

A. a rhombus of area $24cm^2$

B. a trapezium of area $14cm^2$

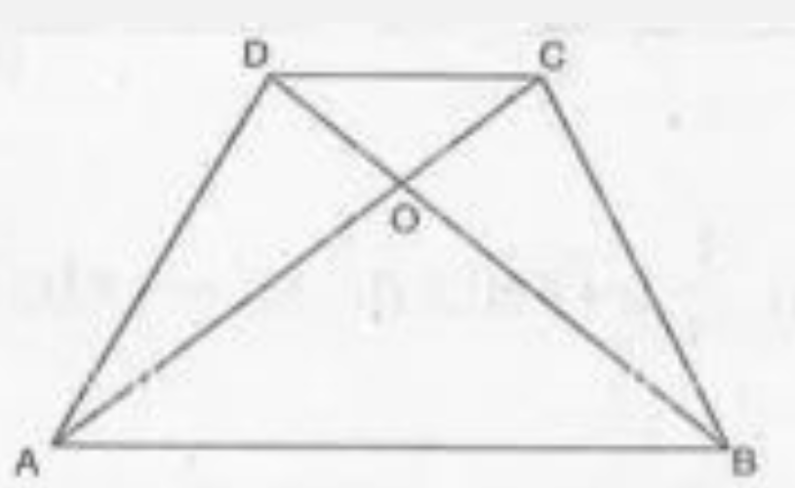
C. a square of area $26cm^2$

D. a rectangle of area $24cm^2$

Answer:

Watch Video Solution

61. In trapezium ABCD $AB \| DC$. If ar (AOD) = $15cm^2$ then ar (BOC) is :



A. 3 cm

B. 6 cm

C. 4 cm

D. 8 cm

Answer:

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62. The lengths of the diagonals of a rhombus are 10 cm and 8.2 cm .Its area will be :

A. $192cm^2$

B. $64cm^2$

C. $96cm^2$

D. $80cm^2$

Answer:

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63. In a quad. ABCD it is given that BD = 16 cm. If $AL \perp BD$ and $CM \perp BD$ such that AL = 9 cm and CM =

7 cm, then ar(quad. ABCD) = ?

A. $64cm^2$

B. $128cm^2$

C. $256cm^2$

D. $96cm^2$

Answer:

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64. In a ||gm ABCD, if P and Q are mid-points of AB and CD respectively and ar(||gm ABCD) = $16cm^2$, then ar(||gm APQD) = ?

A. $12cm^2$

B. $8cm^2$

C. $6cm^2$

D. $9cm^2$

Answer:

Watch Video Solution

65. The median of a triangle divides it into two

A. triangles of equal area

B. congruent triangles

C. right angles

D. isosceles triangles

Answer:

Watch Video Solution

66. The mid-point of the sides of a triangle along with any of the vertices as the fourth point make a parallelogram of area equal to

A. $\frac{1}{2}ar(ABC)$

B. $\frac{1}{3}ar(ABC)$

C. $\frac{1}{4}ar(ABC)$

D. ar(ABC)

Answer:

Watch Video Solution

67. Two parallelograms are on equal bases andbetween the same parallels. The ratio of their areas is

A. $1:2$

B. $1:1$

C. $2:1$

D. $3:1$

Answer:

Watch Video Solution

68. ABCD is a quadrilateral whose diagonal AC divides it into two parts, equal in area, then ABCD

A. is a rectangle

B. is alwys a rhombus

C. is a parallelogram

D. All of the above

Answer:

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69. If a triangle and a parallelogram are on the same base and between same parallels, then the ratio of the area of

the triangle to the area of parallelogram is

A. $1:3$

B. $1:2$

C. $3:1$

D. $1:4$

Answer:

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70. $\triangle ABC \sim \triangle PQR.$ If $ar(ABC) = 2.25m^2. ar(PQR) = 6.25m^2, PQ = 0.5m,$ then length of AB is

A. 30 cm

B. 1.5 cm

C. 50 cm

D. 2 m

Answer:

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71. If $\triangle ABC \sim \triangle DEF$, BC = 4 cm, EF = 5 cm and ar $(\triangle ABC) = 80cm^2$, then $ar(\triangle DEF)$ is

A. $120cm^2$

B. $125cm^2$

C. $15cm^2$

D. $200cm^2$

Answer:

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72. The area of two similar triangles ABC and PQR are $25cm^2$, $49cm^2$. If QR = 9.8 cm, then BC is

A. 9.0 cm

B. 7 cm

C. 49 cm

D. 41 cm

Answer:

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73. What is the area of an equilateral triangle whose sides is 'a'?

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

B. $\frac{\sqrt{3}a^2}{2}$

C. $\frac{\sqrt{3}a^2}{4}$

D. $3a^2$

Answer:

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74. Tick the correct answer and justify : Sides of two similar triangles are in the ratio 4:9. Areas of these triangles are in the ratio

A. $2:3$

B. $4:9$

C. $81:16$

D. $16:81$

Answer:

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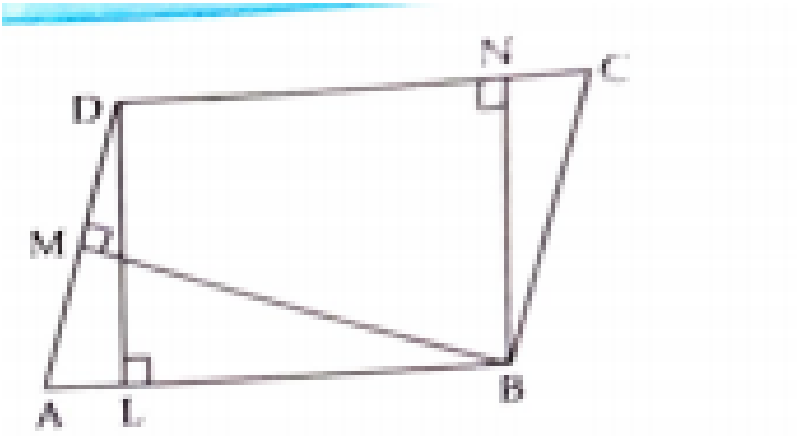
75. In the figure, find the area of ||gm.



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76. Two parallelograms are on equal bases andbetween the same parallels. The ratio of their areas is

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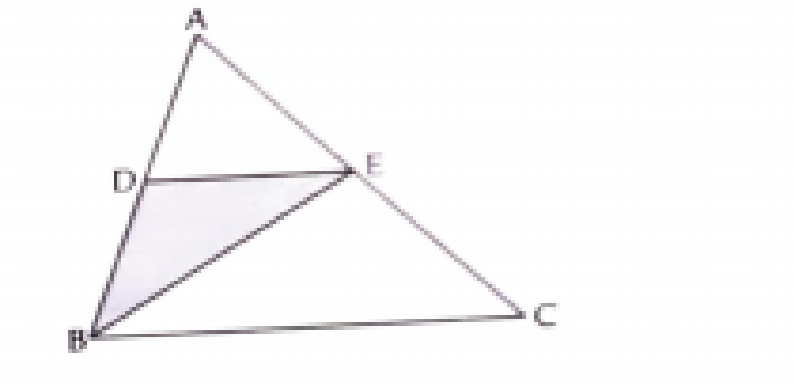
77. In figure.



D and E are the mid-points o sides. AB, AC respectively of $\triangle ABC$. If $ar(\triangle ABC) = 256cm^2$, then find $ar(\triangle BDE)$

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78. ABCD is a trapezium in which AB||DC, DC = 30 cm and AB = 50 cm. If X and Y are, respectivley that mid-points of AD and BC, prove that $ar(DCYX) = \frac{7}{9}ar(XYBA)$

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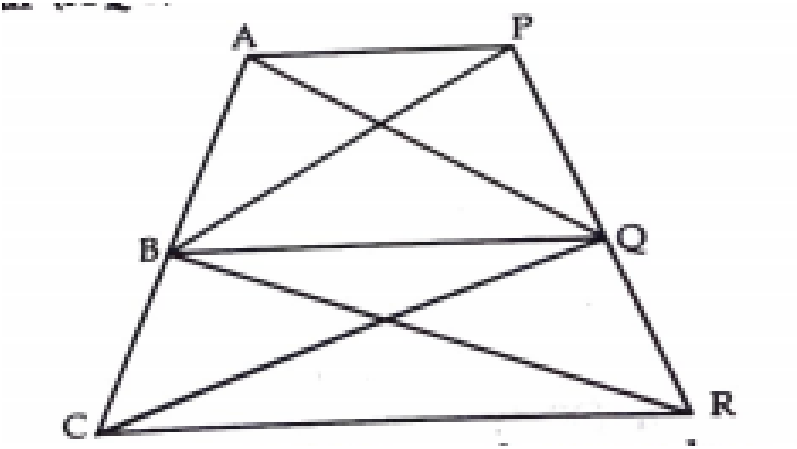
79. AP||BQ||CR. Prove that ar(AQC) = ar(PBR)



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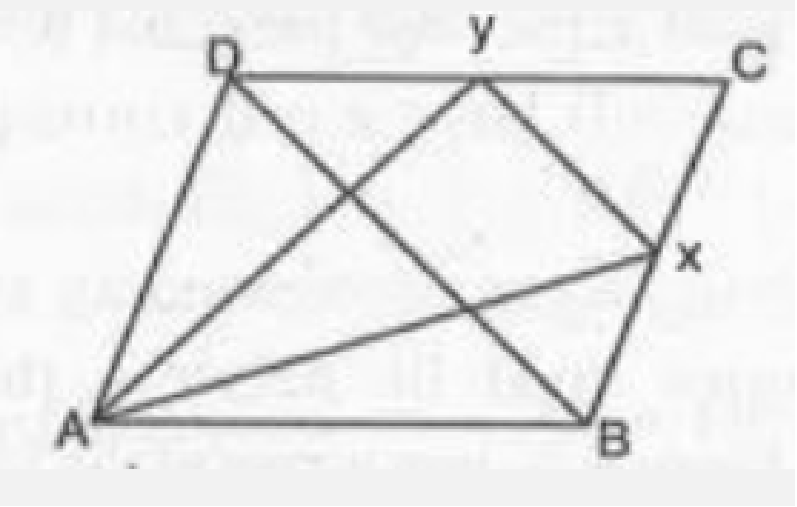
80. ABCD is parallelogram. X and Y are the mid-points of BC and CD respectively. Prove that ar $(\Delta AXY) = \frac{3}{8}$ ar

$(\ |\ |\ )^{gm} ABCD.$



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81. If the medians of a $\triangle ABC$ intersect at G, show that

$ar(AGB) = ar(AGC) = ar(BGC) =$ 1/3`ar(ABC)

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82. PQRS is a ||gm. L is any point on PS and M is any point on QR. Show that:

$ar(\triangle QLR) = ar(\triangle QPM) + ar(\triangle SRM)$

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83. PQRS is a ||gm. L is any point on PS and M is any point on QR. Show that:

$ar(\triangle QLR) = ar(\triangle QPM) + ar(\triangle SRM)$

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