



MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

AREA OF A TRAPEZIUM AND A POLYGON

Solved Examples

1. Two parallel sides of a trapezium are of lengths 27 cm and 19 cm respectively, and the distance between them is 14 cm. Find the area of the trapezium.



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2. The area of a trapezium is 352cm^2 and the distance between its parallel sides is 16 cm. If one of the parallel sides is of length 25 cm, find the

length of the other.

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3. The area of a trapezium is 168cm^2 and its height is 8 cm. If one of the parallel sides is longer than the other by 6 cm. Find the length of each of the parallel sides.

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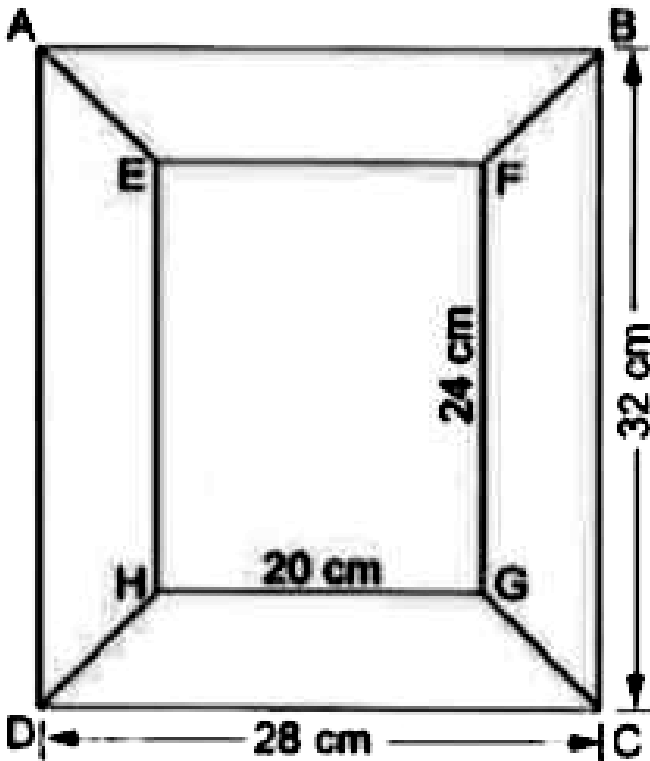
4. The parallel sides of a trapezium are 25cm and 13cm; its nonparallel sides are equal, each being 10cm, find the area of the trapezium.

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5. ABCD is a trapezium in which $AB \parallel DC$, $AB = 78$ cm, $CD = 52$ cm. $AD = 28$ cm and $BC = 30$ cm . Find the area of the trapezium.

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6. The adjacent figure shows the diagram of a picture frame having outer dimensions $28\text{cm} \times 32\text{cm}$ and inner dimensions $20\text{cm} \times 24\text{cm}$. If the width of each section is the same, find the area of each section of the frame.



A. 112cm^2 96cm^2

B. 113cm^2 97cm^2

C. 114cm^2 98cm^2

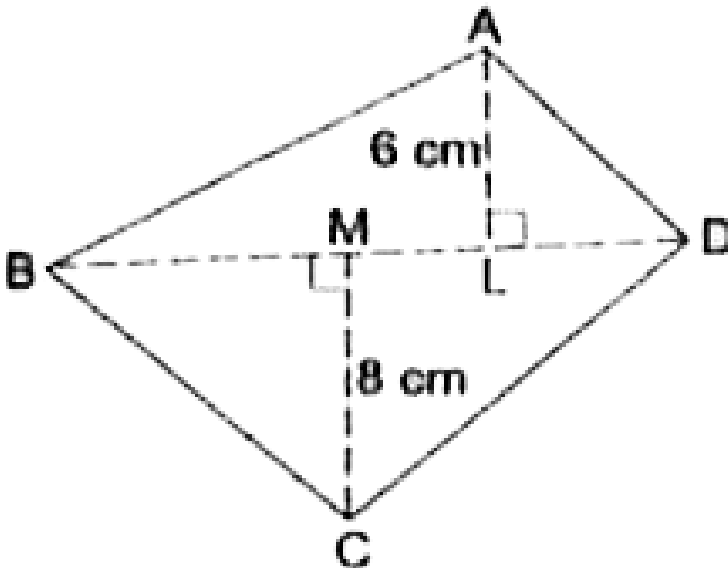
D. 115cm^2 99cm^2

Answer: A

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7. In the given figure, ABCD is a quadrilateral in which $BD = 14\text{cm}$, $AL \perp BD$, $CM \perp BD$ such that $AL = 6\text{ cm}$ and $CM = 8\text{ cm}$.

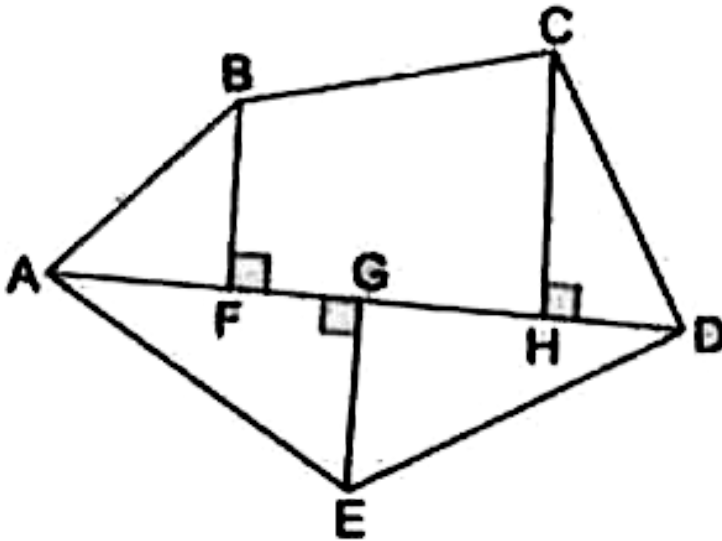
Find the area of aquad. ABCD.





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8. Find the area of the given pentagon $ABCDE$ in which each one of BF , CH and EG is perpendicular to AD such that $AF = 9$ cm, $AG = 13$ cm, $AH = 19$ cm, $AD = 24$ cm, $BF = 6$ cm, $CH = 8$ cm and $EG = 9$ cm.



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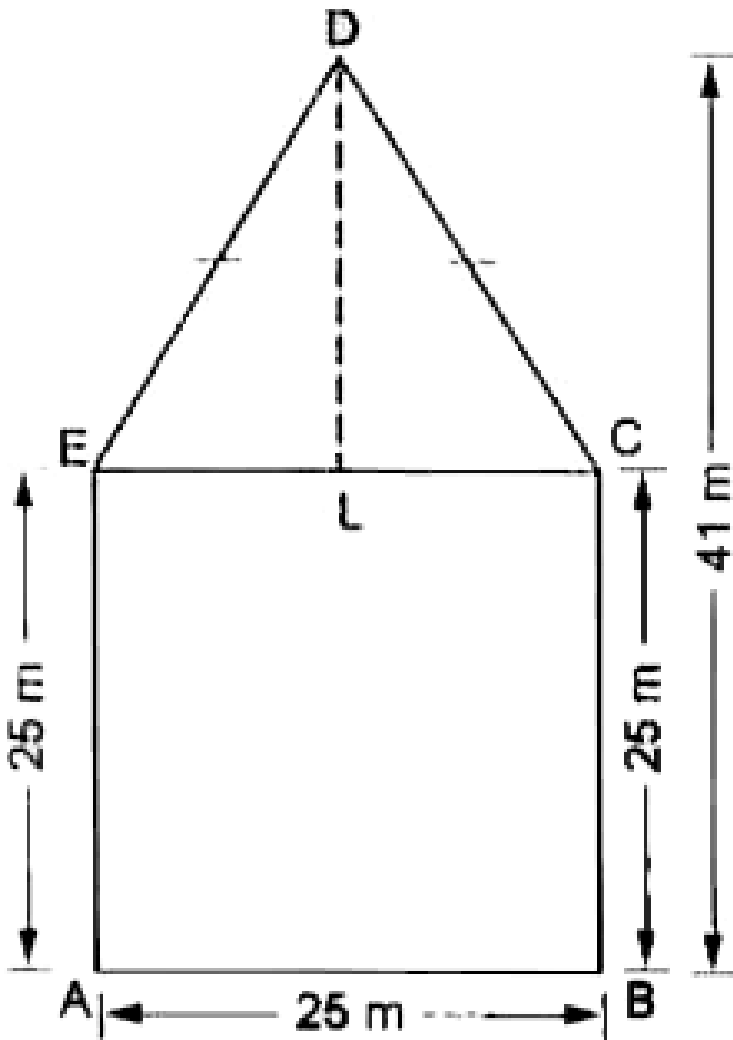
9. Find the area of the given hexagon $ABCDEF$ in which each one of BG , CI , EJ and FH is perpendicular to AD and it is being given that $AG = 6$ cm, $AH =$

10 cm, $AI = 18$ cm, $AJ = 21$ cm. $AD = 27$ cm, $BG = 5$ cm, $CI = 6$ cm, $EJ = 4$ cm and $FH = 6$ cm.



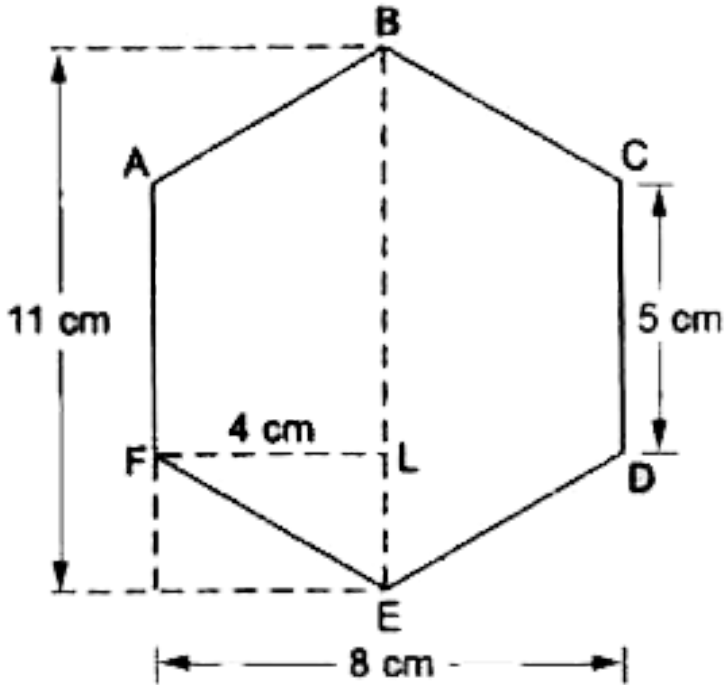
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10. In the given figure ABCDE is a pentagonal park in which $DE = DC$, $AB = BC = CE = EA = 25$ m and its total height is 41 m. Find the area of the park.



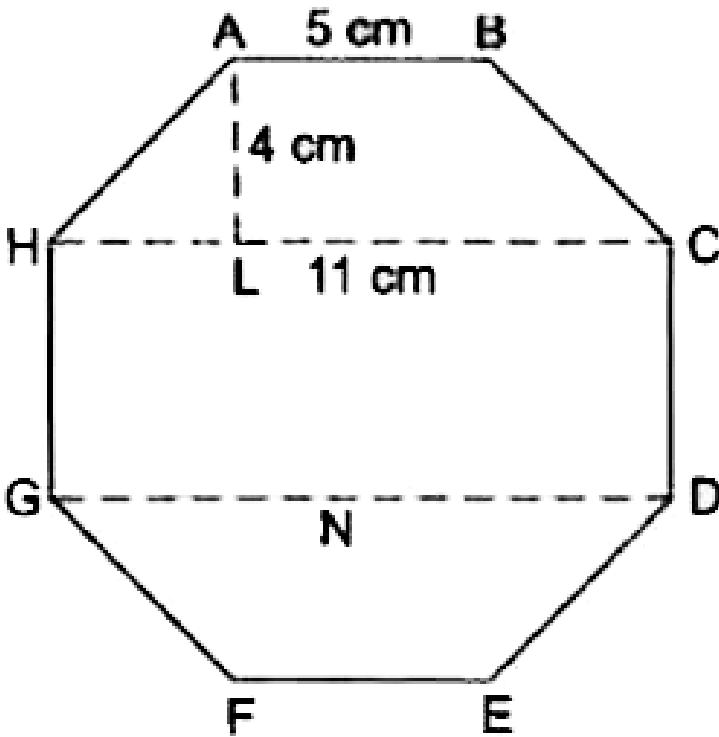
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11. Find the area of the given hexagon ABCDEF in which each side measures 5 cm, height BE = 11 cm and width FD = 8 cm.



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12. Find the area of an octagon ABCDEFGH having each side equal to 5 cm, $HC = 11$ cm and $AL \perp HC$ such that $AL = 4$ cm.



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Exercise 18 A

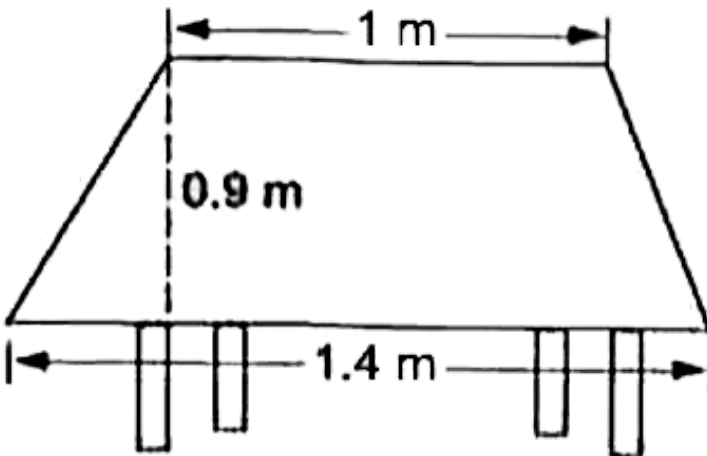
1. Find the area of a trapezium whose parallel sides are 24 cm and 20 cm and the distance between them is 15 cm.

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2. Find the area of a trapezium whose parallel sides are 38.7 cm and 22.3 cm and the distance between them is 16 cm.

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3. The shape of the surface of a table is trapezium. Its parallel sides are 1 m and 1.4 m and the perpendicular distance between them is 0.9 m. Find its area.



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4. The area of a trapezium is 1080 cm^2 . If the length of its parallel sides be 55 cm and 35 cm, then find the distance between the sides.

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5. A field is in the form of a trapezium. Its area is 1586 m^2 and the distance between its parallel sides is 26 m. If one of the parallel sides is 84 m, find the other.

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6. The area of a trapezium is 405 cm^2 . Its parallel sides are in the ratio 4 : 5 and the distance between them is 18 cm. Find the length of each of the parallel sides.

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7. The area of a trapezium is 180cm^2 and its height is 9cm . If one of the parallel sides is longer than the other by 6 cm, the length of the longer of the parallel sides is



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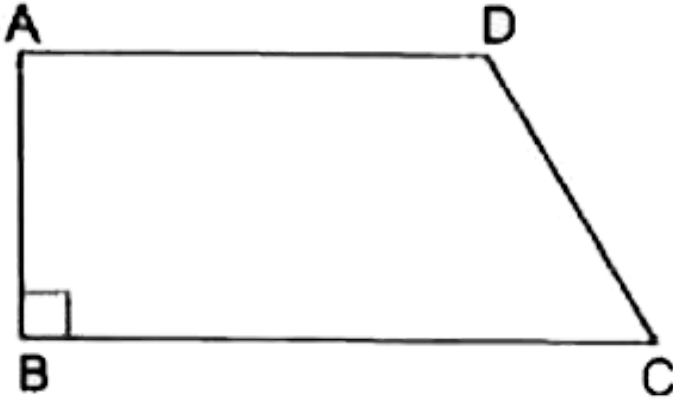
8. In a trapezium-shaped field, one of the parallel sides is twice the other. If the area of the field is 9450m^2 and the perpendicular distance between the two parallel sides is 84 m, find the length of the longer of the parallel sides.



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9. The length of the fence of a trapezium - shaped field ABCD is 130 m and side AB is perpendicular to each of the parallel sides AD and BC. If $BC = 54$

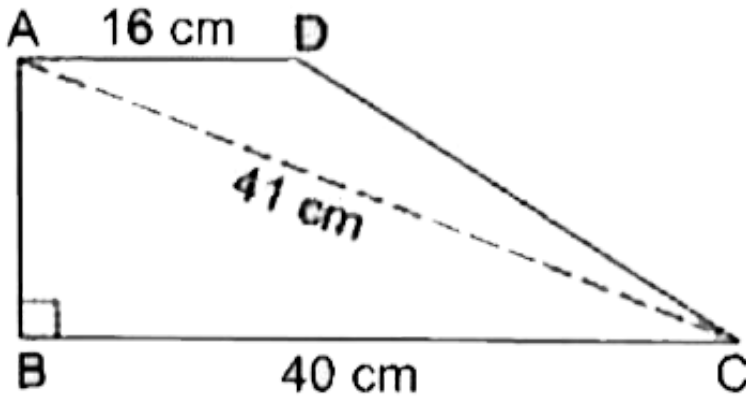
m, $CD = 19$ m and $AD = 42$ m, find the area of the field.



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10. In the given figure, ABCD is a trapezium in which $AD \parallel BC$, $\angle ABC = 90^\circ$, $AD = 16\text{cm}$, $AC = 41\text{cm}$ and $BC = 40$ cm.

Find the area of the trapezium.



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11. The parallel sides of a trapezium are 20 cm and 10 cm. Its nonparallel sides are both equal, each being 13 cm. Find the area of the trapezium.

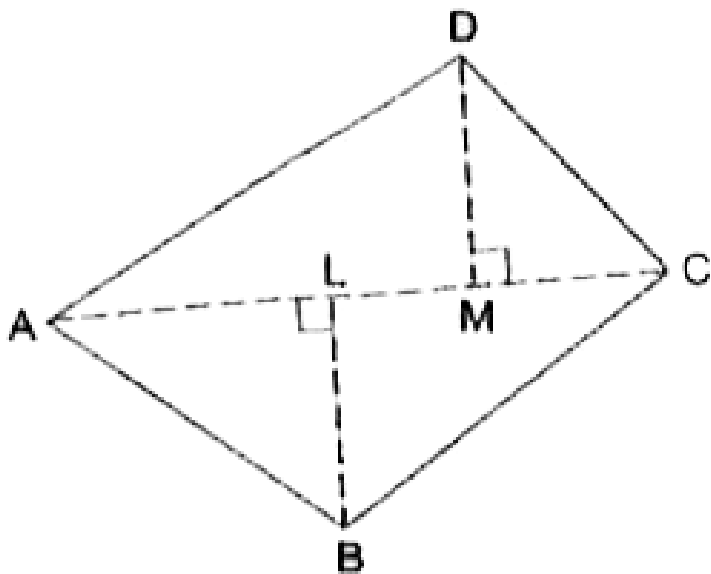
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12. Find the area of a trapezium parallel sides are 11 cm and 25 cm long and nonparallel sides are 15 cm and 13 cm .

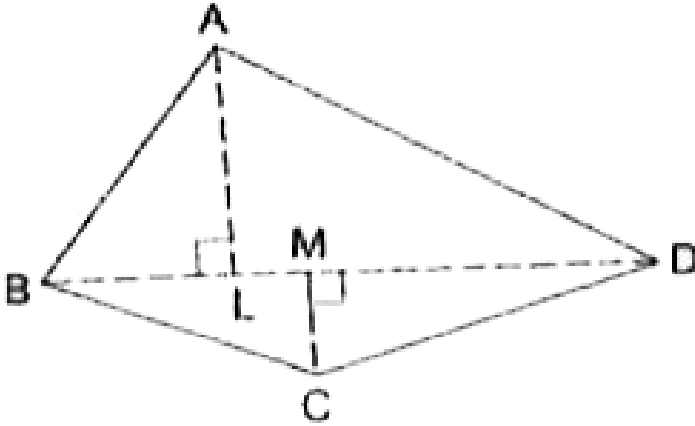
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Exercise 18 B

1. In the given figure, ABCD is a quadrilateral in which $AC = 24$ cm, $BL \perp AC$ and $DM \perp AC$ such that $BL = 8$ cm and $DM = 7$ cm. Find the area of quad. ABCD.



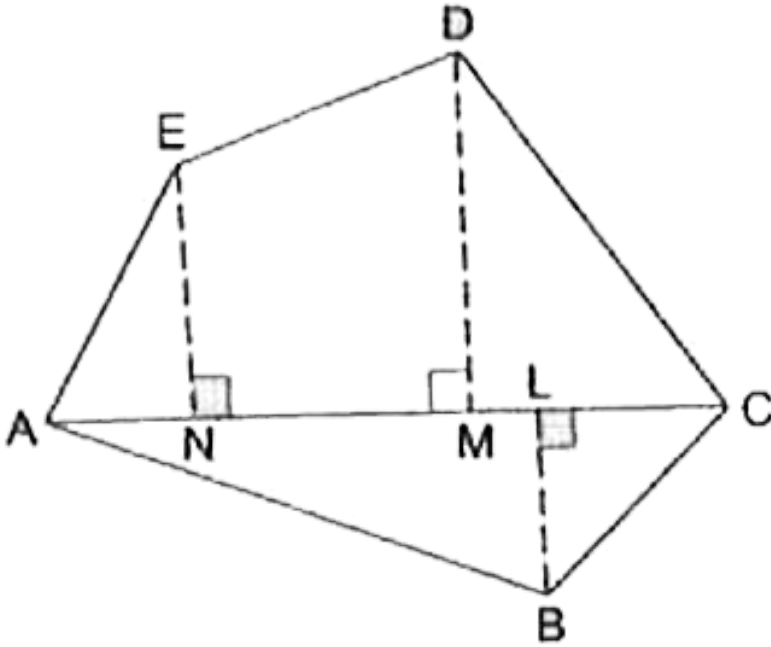
2. In the given figure, ABCD is a quadrilateral - shaped field in which diagonal BD is 36 m, $AL \perp BD$ and $CM \perp BD$ such that $AL = 19$ m and $CM = 11$ m. Find the area of the field.



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3. Find the area of pentagon ABCDE in which $BL \perp AC$, $DM \perp AC$ and $EN \perp AC$ such that $AC = 18$ cm, $AM = 14$ cm, $AN = 6$ cm, $BL = 4$ cm, $DM = 12$

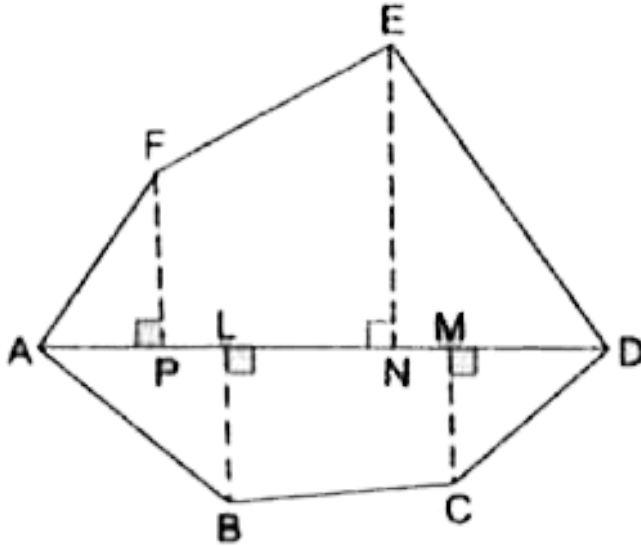
cm and $EN = 9$ cm.



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4. Find the area of hexagon $ABCDEF$ in which $BL \perp AD$, $CM \perp AD$, $EN \perp AD$ and $FP \perp AD$ such that $AP = 6$ cm, $PL = 2$ cm, $LN = 8$ cm, $NM = 2$ cm, $MD = 3$ cm, $FP = 8$ cm

and $CM = 6\text{cm}$.



A. 200cm^2

B. 245cm^2

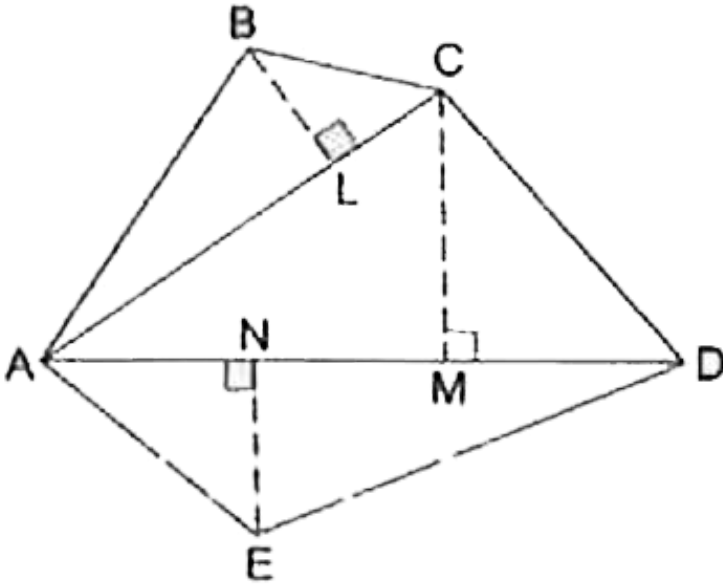
C. 234cm^2

D. 265cm^2

Answer: D

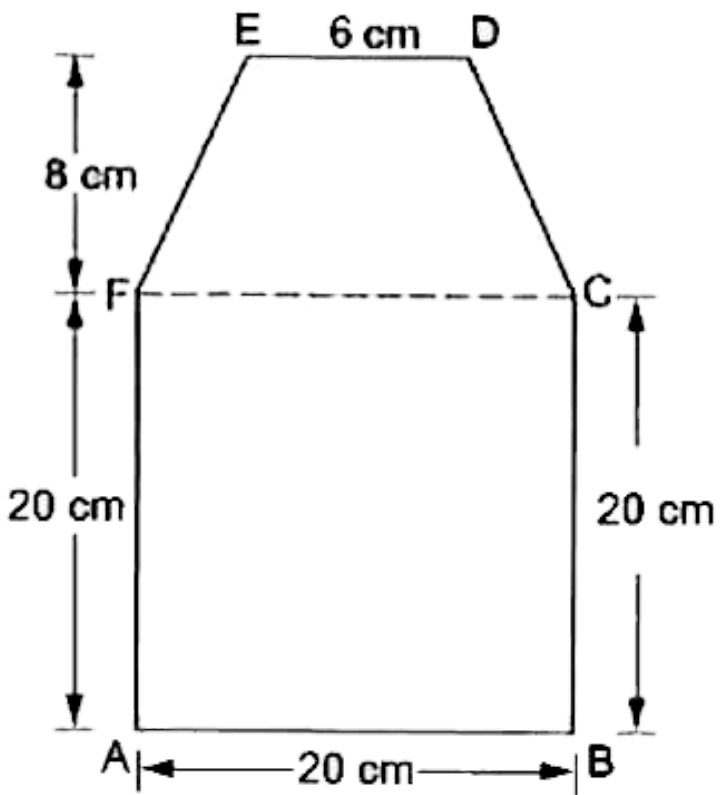
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5. Find the area of pentagone ABCDE in which $BL \perp AC$, $CM \perp AD$ and $EN \perp AD$ such that $AC = 10$ cm, $AD = 12$ cm, $BL = 3$ cm, $CM = 7$ cm and $EN = 5$ cm.



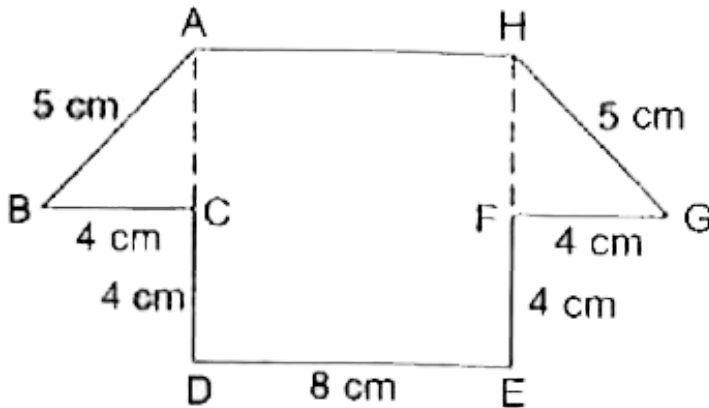
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6. Find the area enclosed by the given figure ABCDEF as per dimensions given herewith.



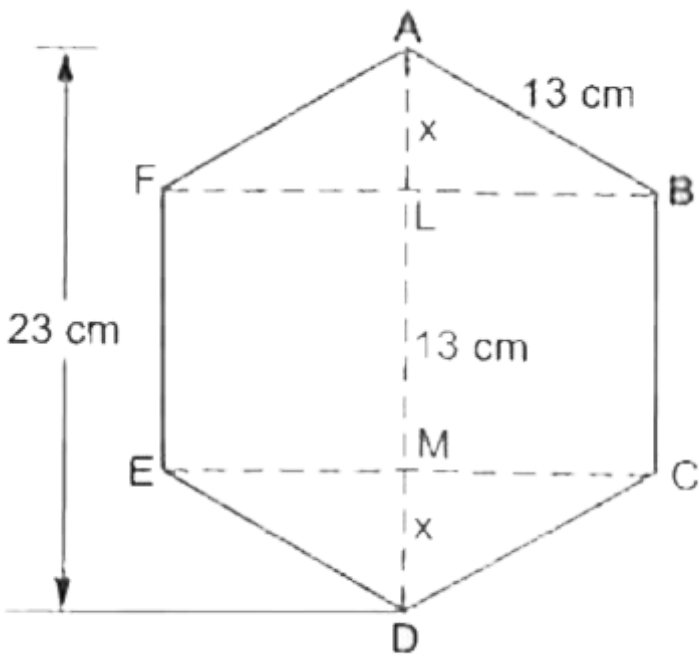
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7. Find the area of given figure ABCDEFGH as per dimensions given in it.



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8. Find the area of a regular hexagon ABCDEF in which each side measures 13 cm and whose height is 23 cm, as shown in the given figure.



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Exercise 18 C Objective Questions

1. The parallel sides of a trapezium measure 14 cm and 18 cm and the distance between them is 9 cm . The area of the trapezium is

A. 96 cm^2

B. 144cm^2

C. 189cm^2

D. 207cm^2

Answer: B



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2. The lengths of the parallel sides of a trapezium are 19 cm and 13 cm and its area is 128cm^2 . The distance between the parallel sides is

A. 9 cm

B. 7 cm

C. 8 cm

D. 12.5 cm

Answer: C



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3. The parallel sides of a trapezium are in the ratio 3:4 and the perpendicular distance between them is 12 cm. If the area of the trapezium is 630cm^2 , then its shorter parallel side is

A. 45 cm

B. 42 cm

C. 60 cm

D. 36 cm

Answer: A



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4. The area of a trapezium is 180cm^2 and its height is 9cm . If one of the parallel sides is longer than the other by 6 cm, the length of the longer of the parallel sides is

A. 17 cm

B. 23 cm

C. 18 cm

D. 24 cm

Answer: B



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5. In the given figure, $AB \parallel DC$ and $DA \perp AB$. If $DC = 7\text{cm}$, $BC = 10\text{cm}$, $AB = 13\text{cm}$ and $CL \perp AB$, the area of trapezium $ABCD$ is

A. 84cm^2

B. 72cm^2

C. 80cm^2

D. 91cm^2

Answer: C



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Test Paper 18 A

1. The base of a triangular field is three times its height and its area is $1350m^2$. Find the base of the field.

A. 30 m

B. 90 m

C. 40 m

D. 50 m

Answer: B



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2. Find the area of an equilateral triangle of side 6 cm.



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3. the perimeter of a rhombus is 180 cm and one of its diagonals is 72 cm
find the length of the other diagonal

A. 54 cm

B. 60 cm

C. 70 cm

D. 84 cm

Answer: A



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4. The area of a trapezium is $216m^2$ and its height is 12m. If one of the parallel sides is 14 m less than the other, find the length of each of the

parallel sides.



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5. Find the area of a quadrilateral one of whose diagonals is 40 cm and the lengths of the perpendiculars drawn from the opposite vertices on the diagonal are 16 cm and 12 cm.



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6. A field is in the form of a right triangle with hypotenuse 50 m and one side 30 m. Find the area of the field.

A. 800 m^2

B. 619 m^2

C. 670 m^2

D. 600 m^2

Answer: D



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Test Paper 18 B Mark Against The Correct Answer In Each Of The Following

1. The base of a triangle is 14 cm and its height is 8 cm. The area of the triangle is

A. $112cm^2$

B. $56cm^2$

C. $122cm^2$

D. $66cm^2$

Answer: B



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2. The base of a triangle is four times its height and its area is $50m^2$. The length of its base is

- A. 10 m
- B. 15 m
- C. 20 m
- D. 25 m

Answer: C



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3. The diagonal of a quadrilateral is 20 cm in length and the lengths of perpendiculars on it from the opposite vertices are 8.5 cm and 11.5 cm.

The area of the quadrilateral is

- A. $400cm^2$
- B. $200cm^2$

C. 300cm^2

D. 240cm^2

Answer: B



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4. Each side of a rhombus is 15 cm and the length of one its diagonals is 24 cm. The area of the rhombus is

A. 432cm^2

B. 216cm^2

C. 180cm^2

D. 144cm^2

Answer: B



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5. The area of a rhombus is 120cm^2 and one of its diagonals is 24 cm.

Each side of the rhombus is

A. 10 cm

B. 13 cm

C. 12 cm

D. 15 cm

Answer: B



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6. The parallel sides of a trapezium are 54 cm and 26 cm and the distance between them is 15 cm. The area of the trapezium is

A. 702cm^2

B. 810cm^2

C. 405cm^2

D. 600cm^2

Answer: D



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7. The area of a trapezium is 384 cm^2 . Its parallel sides are in the ratio 3:5 and the perpendicular distance between them is 12cm. Find the length of the longer parallel sides.

A. 24 cm

B. 40 cm

C. 32 cm

D. 36 cm

Answer: B



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1. (i) Area of triangle = $\frac{1}{2} \times (\dots) \times (\dots)$.

(ii) Area of a parallelogram = $\frac{1}{2} \times (\dots) \times (\dots)$.

(iii) Area of a trapezium = $\frac{1}{2} \times (\dots) \times (\dots)$.

(iv) The parallel sides of a trapezium are 14 cm and 18 cm and the distance between them is 8 cm. The area of the trapezium is cm^2 .



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