



MATHS

BOOKS - RS AGGARWAL MATHS (HINGLISH)

PERIMETER AND AREA OF PLANE FIGURES

Solved Examples

1. Find the area of a triangle having base 25 cm and height 10.8 cm .

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2. The base of a triangular field is three times its altitude . If the cost of sowing the field at Rs. 960 per hectare is Rs. 12960 , find its base and height .

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3. The lengths of the sides of a triangle are in the ratio 3:4:5 and its perimeter is 144cm . Find the area of the triangle and the height corresponding to the longest side.



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4. Find the area of an equilateral triangle having each side of length 10 cm .

[Take $\sqrt{3} = 1.732$.]



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5. किसी समबाहु त्रिभुज की ऊंचाई 15 cm है। त्रिभुज का क्षेत्रफल ज्ञात करें?



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6. Find the area of an isosceles triangle having each of whose equal sides is 13 cm and whose base is 24 cm.

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7. The base of an isosceles triangle measures 24 cm and its area is 192cm^2 , Find its perimeter.

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8. The difference between the sides at right angles in a right - angled triangle is 14 cm . The area of the triangle is 120cm^2 . Calculate the perimeter of the triangle.

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9. The length of a rectangular field exceeds its breadth by 8 m the area of the field is $240m^2$.Find the dimensions of the field .



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10. Sum of the areas of two squares is 400 cm. If the difference of their perimeters is 16 cm, find the sides of the two squares.



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11. The length of the diagonal of a square is 24 cm ,Find (i) the area of the square and (ii) its perimeter .[Given , $\sqrt{2} = 1.41$.]



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12. the longer side of a rectangular hall is 24 m and the length of its diagonal is 26 m. Find the area of the hall .





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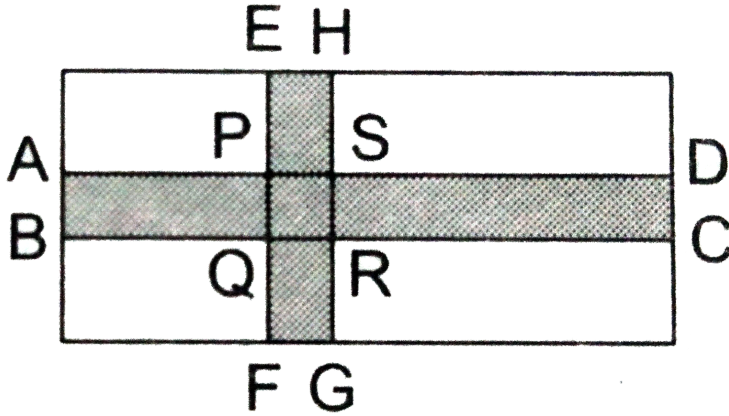
13. The length and breadth of a rectangular park are in the ratio 8:5. A path, 1.5 m wide, running all around the outside of the park has an area of 594m^2 . Find the dimensions of the park.



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14. A rectangular lawn, 75m by 60 m has two rods, each 4 m wide, running through the middle of the lawn, one parallel to length and the other parallel to breadth, as shown in the figure. Find the cost of

gravelling the roads at Rs. 50 per m^2 .



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15. Find the area of the quadrilateral whose sides measure 9 cm , 40 cm , 28 cm and 15 cm , and in which the angle between the first two sides is right angle .



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16. In a four - sided field , the length of the longer diagonal is 120 m . The lengths of perpendicular from the opposite vertices on this diagonal are 20 m and 15 m .Find the area of the field .



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17. Find the area of a parallelogram one of whose sides measures 40 cm and the corresponding height measures 19.5 cm .



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18. The adjacent sides of a parallelogram are 36 cm and 27 cm in length .If the distance between the shorter sides is 12 cm , find the distance between the longer sides .



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19. The diagonals of a rhombus are 48 cm and 20 cm long . Find the the perimeter of the rhombus .



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20. Find the area of a tranpezium whose parallel sides are 35 cm and 23 cm long and the distance between them is 15 cm .



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21. Find the area of a trapezium ABCD in which $AB \parallel DC$, $AB = 77cm$, $BC = 25cm$, $CD = 60cm$ and $DA = 26cm$.



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1. Find the the area of the triangle whose base measures 24 cm and the corresponding height measures 14.5 cm.

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2. Find the area of the triangle whose sides are 42 cm , 34 cm and 20 cm
Also, find the height corresponding to the longest side .

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3. Find the area of the triangle whose sides are 18 cm , 24 cm and 30 cm .
Also, find the height corresponding to the smallest side .

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4. The sides of a triangle are in the ratio 5 : 12 : 13 and its perimeter is 150 m. Find the area of the triangle.

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5. The perimeter of a triangular field is 540 m and its sides are in the ratio 25: 17: 12. Find the area of the triangle. Also, find the cost ploughing the field at *Rs.* 18.80 per $10m^2$

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6. The perimeter of a right is 40 cm and its hypotenuse measures 17. cm find the area of the area of the triangle .

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7. the difference between the sides ar right angles in right- angled triangle is 7 cm . The area of the triangle is $60cm^2$.Find its perimeter .

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8. The lengths of the two sides of a right triangle containing the right angle differ by 2cm . If the area of the triangle is 24cm^2 . Find the perimeter of the triangle.



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9. Each side of an equilateral triangle is 10 cm . Find (i) the area of the triangle and (ii) the height of the triangle .



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10. The height of an Equilateral triangle is $6\sqrt{3}\text{cm}$ Find its area



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11. The area of equilateral triangle measure $36\sqrt{3}\text{cm}^2$ Find the perimeter of triangle.





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12. If the area of an equilateral triangle is $81\sqrt{3}cm^2$, find its height .



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13. The base of a right - angled triangle measures 48 cm and its hypotenuse measures 50 cm . Find the area of the triangle .



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14. The Hypotenuse of a right triangle is 65 cm and its base is 60 cm . Find the length of perpendicular and the area of the triangle .



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15. Find the area of a right - angled triangle , the radius of whose circumcircle measures 8 cm and the altitude drawn to the hypotenuse measures 6 cm .



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16. Find the length of the hypotenuse of an isosceles right - angled triangle whose area is 200 cm^2 . Also , find its perimeter.

[Given , $\sqrt{2} = 1.41$.]



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17. The base of an isosceles triangle measures 80 cm and its area is 360 cm^2 . Find the perimeter of the triangle.



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18. Each of the equal sides of an isosceles measures 2 cm more than its height , and the base of the triangle measures 12 cm. Find the area of the triangle.



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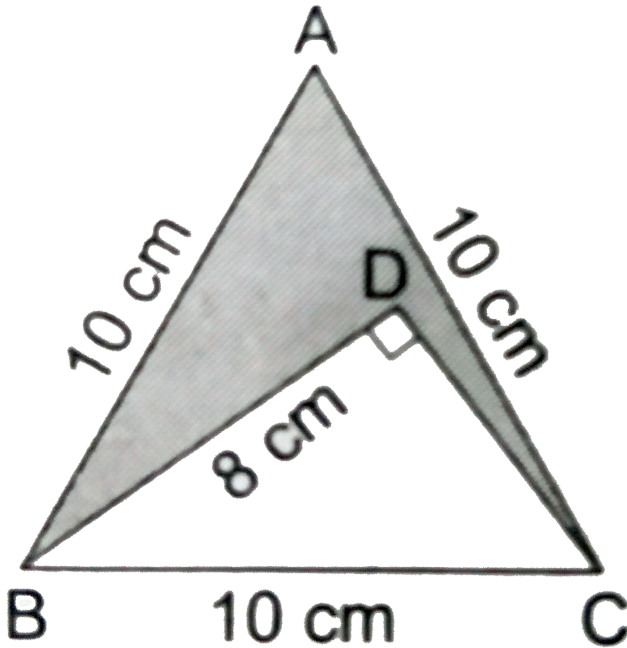
19. Find the area and perimeter of an isosceles right , each of whose equal sides measures 10 cm. [Take, $\sqrt{2} = 1.41$.]



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20. In the given figures , $\triangle ABC$ is an equilateral triangle the length of whose side is equal to 10 cm , and $\triangle DBC$ right - angled at D and $BD=8$

cm . Find the area of the shaded region [Take, $\sqrt{3} = 1.732$.]



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Exercise 15 B

1. The perimeter of a rectangular plot of land is 80 m and its breadth is 16 m . Find the length and area of the plot .

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2. The length of a rectangular park is twice its breadth and its perimeter is 840 m. Find the area of the park .

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3. one side of a rectangle is 12 cm long and its diagonal measures 37 cm
Find the other side and the area of the rectangle .

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4. The area of a rectangular plot is 462 m^2 and its length is 28 m. Find its perimeter.

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5. A lawn is in the form of a rectangle whose sides are in the ratio 5:3 the area of the lawn is 3375 m^2 .Find the cost of fencing the lawn at Rs. 65 per metre.



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6. A room is 16 m long and 13.5m broad .Find the cost of covering its floor with 75 cm wide carpet at Rs, 60 per metre .



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7. The floor of a rectangular hall is 24 m long and 18 m wide .How many carpets , each of length 2.5 m and breadth 80 cm , will be required to cover the floor of the hall ?



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8. A 36-m-long, 15-m-broad verandah is to be paved with stones, each measuring 6 dm by 5 dm. How many stones will be required?

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9. The area of a rectangle is 192 cm^2 and its perimeter is 56 cm. Find the dimensions of the rectangle.

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10. A rectangular park 35 m long and 18 m wide is to be covered with grass, leaving 2.5 m uncovered all around it. Find the area to be laid with grass.

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11. A rectangular plot measures 125 m by 78 m. It has a gravel path 3m wide all around on the outside .find the area of the path and the cost of gravelling it at Rs. 75 per m^2 .



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12. (i) A footpath of uniform width runs all around the inside of a rectangular field 54 m long and 35 m wide . If the area of the path is 420 m^2 , find the width of the path .

(ii) A carpet is laid on the floor of a room 8m by 5m , there is a border of constant width all around the carpet . If the area of the border is $12m^2$, find its width .



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13. The length and the breadth of rectangular garden are in the ratio 9:5
A path 3.5 m wide , running all around inside it has an area of 1911 m^2 find the dimensions of the garden .



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14. A room 4.9 m long and 3.5 m broad is covered with carpet leaving an uncovered margin of 25 cm all around the room. If the breadth of the carpet is 80 cm, find its cost at 40 per metre.



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15. In the centre of a rectangular lawn of dimensions $50m \times 40m$ a rectangular pond has to be constructed so that the area of the grass surrounding the pond would be $1184m^2$. Find the length and breadth of the pond



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16. A 80 m by 64 m rectangular lawn has two roads, each 5m wide running through its middle, one parallel to its length and the other parallel to its breadth. Find the cost of gravelling the roads at Rs. 40 per m^2 .



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17. The dimensions of a room are $14m \times 10m \times 6.5m$. there are two doors and 4 windows in the room . Each door measures $2.5m \times 1.2m$ and each window measures $1.5m \times 1m$. find the cost of painting the four walls of the room at Rs. 35 per m^2 .



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18. The cost of painting if four walls of a room 12 m long at Rs. 30 per m^2 is Rs. 7560 and th cost of covering the floor with mat at Rs. 25 per m^2 is Rs. 2700 .Find the dimensions of the room .



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19. Find the area and perimeter of a square plot of land whose diagonal is 24 m long , [take $\sqrt{2} = 1.41$.]



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20. Find the length of the diagonal of a square whose area is 128cm^2 . Also, find its perimeter.

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21. The area of a square field is 8 hectares, How long would a man take to cross it diagonally by walking at the rate of 4 km per hour?

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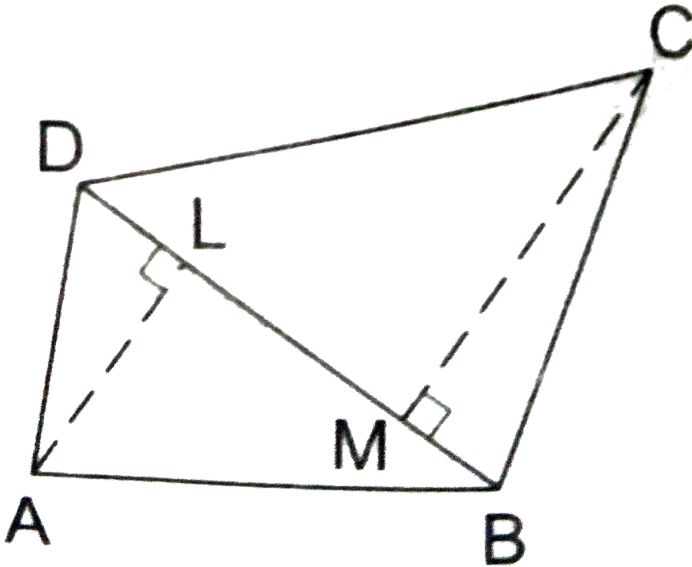
22. The cost of harvesting a square field at Rs. 900 per hectare is Rs. 8100. Find the cost of putting a fence around it at Rs. 18 per metre.

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23. The cost of fencing a square lawn at Rs.14 per metre is Rs. 28000. Find the cost mowing the lawn at Rs.54 per $100m^2$

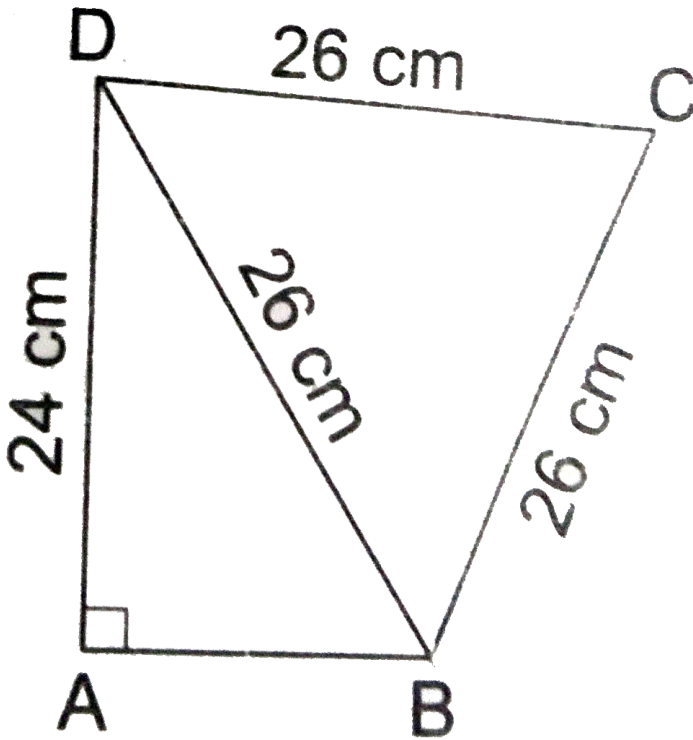
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24. In the given figure ABCD is a quadrilateral in which diagonal $BD = 24cm$, $AL \perp BD$ and $CM \perp BD$ such that $AL = 9cm$ and $CM = 12$ cm. Calculate the area of the quadrilateral .



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25. Find the area of the quadrilateral ABCD in which $AD = 24$ cm $\angle BAD = 90^\circ$ and $\triangle BCD$ is an equilateral triangle having each side equal to 26 cm ,Also , find the perimeter of the quadrilateral [Given , $\sqrt{3} = 1.73$.]

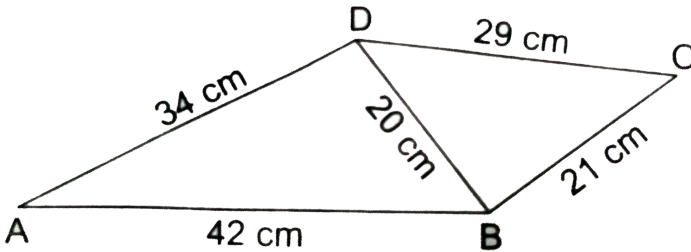


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26. Find the perimeter and area of the quadrilateral ABCD in which $AB = 17$ cm $AD = 9$ cm, $CD = 12$ cm $\angle ACB = 90^\circ$ and $AC = 15$ cm.

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27. Find the area of the quadrilateral ABCD in which $AB = 42$ cm. $BC = 21$ cm, $CD = 29$ cm, $DA = 34$ cm and diagonal $BD = 20$ cm.



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28. Find the area of a parallelogram with base equal to 25 cm and the corresponding height measuring 16.8 cm.

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29. The adjacent sides of a parallelogram are 32 cm and 24 cm . If the distance between the longer sides is 17.4 cm, find the distance between the shorter sides .



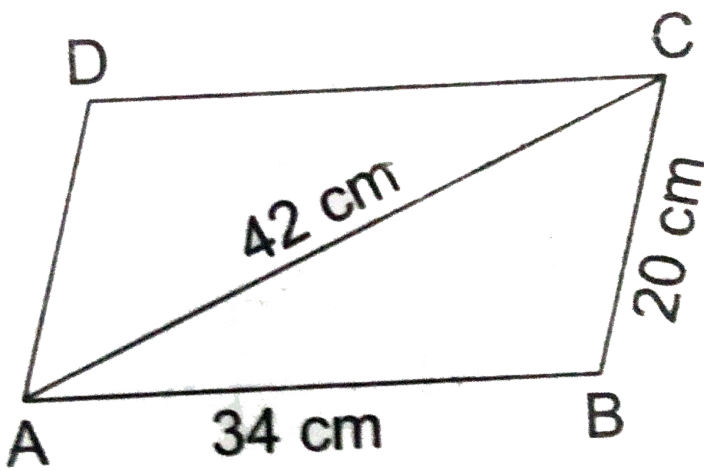
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30. The area of a parallelogram is 392 m^2 . If its altitude is twice the corresponding base , determine is 392m^2 . If its altitude is twice the corresponding base , determine the base and the altitude .



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31. The adjacent sides of a parallelogram ABCD measure 34 cm and 20 cm , and the diagonal ac measures 42 cm . Find the area of the parallelogram



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32. Find the area of the rhombus , the lengths of whose diagonals are 30 cm and 16 cm .Also , find the perimeter of the rhombus .

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33. the perimeter of a rhombus is 60 cm.If one of its digonals is 18 cm long find (i) the length of the other diagonal , and (ii) the area of the rhombus.

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34. The area of rhombus is 480cm^2 , and one of its diagonal measures 48cm . Find the (i) length of the other diagonal (ii) the length of each of its sides and (ii) its perimeter

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35. The parallel sides of a trapezium are 12 cm and 9 cm and the distance between them is 8 cm . Find the area of the trapezium.

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36. The shape of the cross section of a canal is a trapezium . If the canal is 10 m wide at the top , 6 m wide at the bottom and the area of its cross section is 640m^2 , find the depth of the canal .

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37. Find the area of a trapezium whose parallel sides are 11 m and 25 m long, and the nonparallel sides are 15 m and 13 m long.



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Multiple Choice Questions Mcq

1. The length of a rectangular hall is 5 m more than its breadth . If the area of the hall is $750m^2$ then its length is

- A. 15m
- B. 20m
- C. 25m
- D. 30m

Answer: D



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2. The length of a rectangular field is 23 m more than its breadth , if the perimeter of the field is 206 m, then its area is

A. $2420m^2$

B. $2520m^2$

C. $2480m^2$

D. $2620m^2$

Answer: B



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3. The length of a rectangular field is 12 m and length of its diagonal is 15 m . The area of the field is

A. $108m^2$

B. $180m^2$

C. $30\sqrt{3}m^2$

D. $12\sqrt{15}m^2$

Answer: A



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4. The cost of carpeting a room 15 m long with a carpet 75 cm wide , at Rs. 70 per metre , is Rs. 8400 .The width of the room is

A. 9m

B. 8m

C. 6m

D. 12m

Answer: C



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5. The length of a rectangle is thrice its breadth and the length of its diagonal is $8\sqrt{10}$ cm . The perimeter of the rectangle is

A. $15\sqrt{10}cm$

B. $16\sqrt{10}cm$

C. $24\sqrt{10}cm$

D. 64 cm

Answer: D



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6. On increasing the length of a reactangle by 20% and decreasing its breadth by 20 % what is the change in its area ?

A. 20% increase

B. 20% decrease

C. No change

D. 4% decrease

Answer: D



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7. A rectangular ground $80m \times 50m$ has a path 1 m wide outside around it , the area of the path is

A. $264m^2$

B. $284m^2$

C. $400m^2$

D. $464m^2$

Answer: A



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8. the length of the diagonal of a square is $10\sqrt{2}$ cm .Its area is

- A. $200m^2$
- B. $100m^2$
- C. $150m^2$
- D. $100\sqrt{2}cm^2$

Answer: B



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9. of a square field is $6050m^2$. The length of its diagonal is

- A. 135m
- B. 120m
- C. 112m
- D. 110m

Answer: D



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10. The area of a square field is 0.5 hectare. Its diagonal would be (a) 50m

(b) $50\sqrt{2}m$ (c) 100m (d) 250m

A. 150m

B. $100\sqrt{2}m$

C. 100m

D. $50\sqrt{2}m$

Answer: C



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11. the area of an equilateral triangle is $4\sqrt{3}cm^2$ Its perimeter is

A. 9cm

B. 12 cm

C. $12\sqrt{3}\text{ cm}$

D. $6\sqrt{3}\text{cm}$

Answer: B



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12. Each side of an equilateral triangle is 8 cm . Its area is

A. 24cm^2

B. $24\sqrt{3}\text{cm}^2$

C. $16\sqrt{3}\text{cm}^2$

D. $8\sqrt{3}\text{cm}^2$

Answer: C



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13. किसी समबाहु त्रिभुज की माध्यिका $6\sqrt{3}\text{cm}$ है तब त्रिभुज का परिमाण ज्ञात करें?

A. 8 cm

B. 9 cm

C. $3\sqrt{3}\text{cm}$

D. 6cm

Answer: B



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14. The height of an equilateral triangle is $3\sqrt{3}\text{ cm}$. Its area is

A. $6\sqrt{3}\text{cm}^2$

B. 27cm^2

C. $9\sqrt{3}\text{cm}^2$

D. $27\sqrt{3}cm^2$

Answer: C



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15. The base and height of a triangle are in the ratio 3:4 and its area is $216cm^2$. The height of the triangle is

A. 18 cm

B. 24 cm

C. 21 cm

D. 28 cm

Answer: B



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16. The length of the sides of a triangle field are 20 m , 21 m and 29 m the cost of cultivating the field at Rs. 9 per m^2 is

- A. Rs.2610
- B. Rs.3780
- C. Rs.1890
- D. Rs. 1800

Answer: C



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17. The side of a square is equal to the side of an equilateral triangle ,The ratio of their areas is

- A. 4: 3
- B. 2: $\sqrt{3}$
- C. 4: $\sqrt{3}$

D. None of these

Answer: C



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18. The side of an equilateral triangle is equal to the radius of a circle whose area is 154cm^2 . The area of the triangle is

A. 49cm^2

B. $\frac{49\sqrt{3}}{4}\text{cm}^2$

C. $\frac{7\sqrt{3}}{4}\text{cm}^2$

D. 77cm^2

Answer: B



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19. The area of a rhombus is 480cm^2 and the length of one of its diagonals is 20 cm . The length of each side of the rhombus is

A. 24 cm

B. 30cm

C. 26 cm

D. 28 cm

Answer: C



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20. One side of a rhombus is 20 cm long and one of its digonals measures 24 cm. the area of the rhombus is

A. 192cm^2

B. 480cm^2

C. 240cm^2

D. 384cm^2

Answer: D

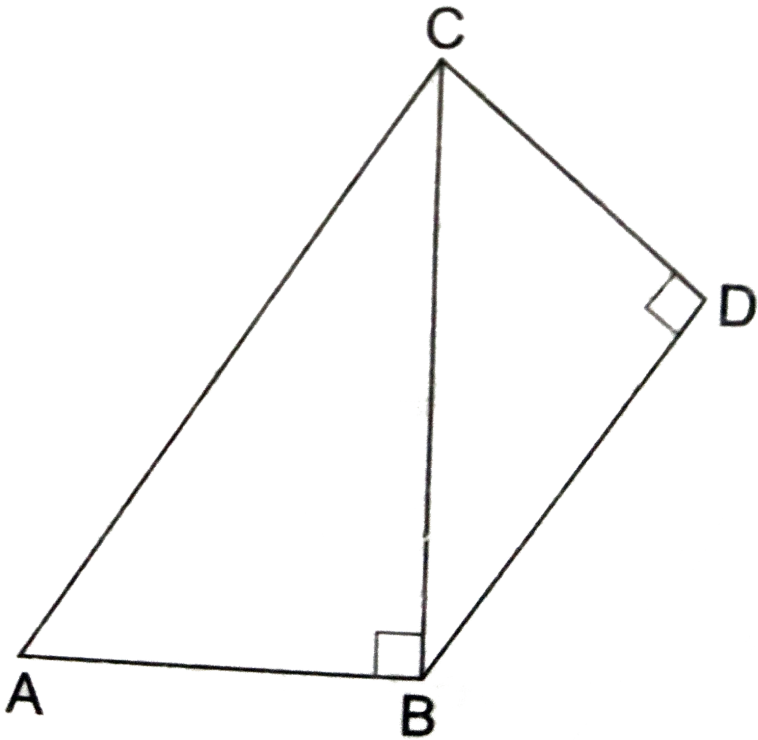


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Test Yourself

1. In the given figure ABCD is a quadrilateral in which $\angle ABC = 90^\circ$, $\angle BDC = 90^\circ$, $AC = 17\text{cm}$, $BC = 15\text{cm}$, $BD = 12\text{cm}$ and

The area of quad. ABDC is



A. 102cm^2

B. 114cm^2

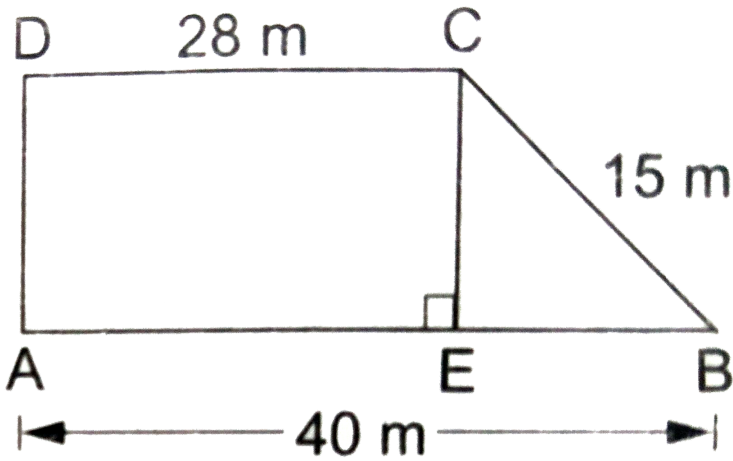
C. 95cm^2

D. 57cm^2

Answer: B



2. In the given figure ABCD is a trapezium in which $AB = 40$ m, $BC = 15$ m, $CD = 28$ m, $AD = 9$ m and $CE \perp AB$. area of trap. ABCD is



- A. $306m^2$
- B. $316m^2$
- C. $296m^2$
- D. $284m^2$

Answer: A





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3. The sides of triangle are in the ratio 12 :14 :25 and its perimeter is 25.5 cm. the largest side of the triangle is

A. 7 cm

B. 14 cm

C. 12.5 cm

D. 18 cm

Answer: C



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4. The parallel sides of a trapezium are 9.7 cm and 6.3 cm , and the distance between them is 6.5 cm. The area of the trapezium is

A. $104cm^2$

B. 78cm^2

C. 52cm^2

D. 65cm^2

Answer: C



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5. Find the area of an equilateral triangle having each side of length 10 cm .

[Take $\sqrt{3} = 1.732$.]



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6. Find the area of an isosceles triangle having each of whose equal sides is 13 cm and whose base is 24 cm.



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7. the longer side of a rectangular hall is 24 m and the length of its diagonal is 26 m. Find the area of the hall .

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8. The length of the diagonal of a square is 24 cm. Find its area .

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10. Find tha area of a triangle whose sides are 42 cm, 34cm and 20 cm.

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11. A lawn is in the form of a rectangle whose sides are in the ratio 5:3 and its area is 3375 m^2 . Find the cost of fencing the lawn at Rs. 20 per metre .

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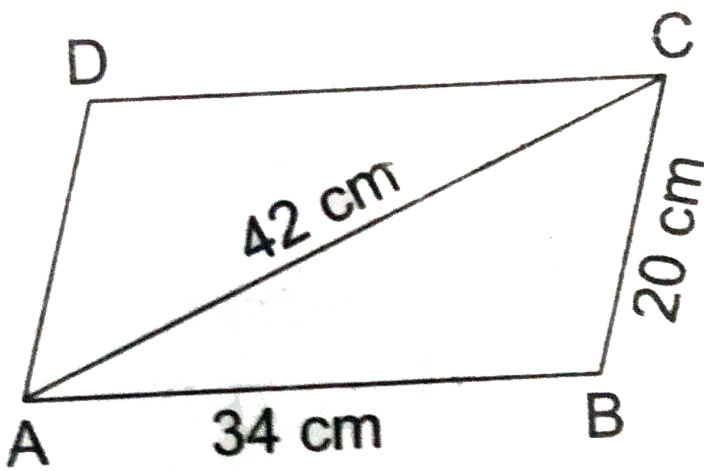
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14. The adjacent sides of a parallelogram ABCD measure 34 cm and 20 cm , and the diagonal ac measures 42 cm . Find the area of the parallelogram



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15. The cost of fencing a square lawn at Rs.14 per metre is Rs. 28000. Find the cost mowing the lawn at Rs.54 per $100m^2$

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16. A parallelogram and a rhombus are equal in area. The diagonals of the rhombus measure 120m and 44m. If one of the sides of the parallelogram measures 66m, find its corresponding altitude.

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17. The diagonals of a rhombus are 48 cm and 20 cm long . Find the the perimeter of the rhombus .

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18. The adjacent sides of a parallelogram are 36 cm and 27 cm in length .If the distance between the shorter sides is 12 cm , find the distance between the longer sides .

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19. In a four sider- field , the length of the longer diagonal is 128 m. the lengths of perpendiculars from the opposite vertices upon this diagonal are 22.7 m and 17.3 and Find the area of the field.

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Test Yourself Short Answer Questions

1. Find the area of quad.ABCD in which $AB = 42$, $BC = 21\text{cm}$, $CD = 29\text{cm}$, $DA = 34$ and diag ,BD = 20 cm



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