



MATHS

BOOKS - KUMAR PRAKASHAN KENDRA

MATHS (GUJRATI ENGLISH)

HERON'S FORMULA

SUM TO ENRICH .REMEMBER.

1. The area of an isosceles triangle is 60cm^2 and the length of each one of its equal sides is

13 cm. Find its base.



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2. The cost of fencing a circular field at the rate of Rs. 24 per metre is Rs. 5280. The field is to be ploughed at the rate of Rs 0.50 per m^2 .

Find the cost of ploughing the field (Take

$$\pi = \frac{22}{7})$$



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3. The sides of a triangular plot are in the ratio of 3 : 5 : 7 and its perimeter is 300 m. Find its area.



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4. A park, in the shape of a quadrilateral ABCD has $\angle C = 90^\circ$, $AB = 9$ m, $BC = 12$ m, $CD = 5$ m and $AD = 8$ m. How much area does it occupy ?





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SKILL TESTING EXERCISE

1. $\triangle PQR$ is an equilateral triangle. If $PQ = 10$ cm. Find the area of $\triangle PQR$ using Heron's formula.



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2. The measurements of the sides of a triangle are 20 cm, 30 cm and 40 cm. Find the area of

this triangle.



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3. The perimeter of an equilateral triangle is 54 cm. Find its area using Heron's formula.



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4. The ratio of the measures of three sides of a triangle is $4 : 2 : 3$ and its perimeter is 36 cm. Find the area of this triangle.



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5. The shape of a field is an isosceles triangle.

The length of two equal sides of the field is 30 m and the length of the third side is 20 m.

Find its area.



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6. The ratio of the lengths of sides of a triangle

is 13 : 14 : 15 and its perimeter is 84 cm. Find

its area.



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7. In $\triangle ABC$, $AB = 20$ cm, $BC = 21$ cm and the perimeter of $\triangle ABC = 70$ cm. Find the area of $\triangle ABC$ using Heron's formula.



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8. In quadrilateral PQRS, $PQ = 3$ cm, $QR = 4$ cm, $RS = 8$ cm, $SP = 7$ cm and $PR = 5$ cm. Find the

area of quadrilateral PQRS.



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9. In a parallelogram, two adjacent sides measure 51 cm and 35 cm. One of its diagonals measures 20 cm. Find the area of the parallelogram.



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10. The perimeter of a rhombus is 144 cm and one of its diagonals measures 48 cm. Find the area of the rhombus.



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11. In quadrilateral ABCD, $AB = 9$ cm, $BC = 12$ cm, $CD = 8.5$ cm, $DA = 8.5$ cm and $AC = 15$ cm. Find the area of quadrilateral ABCD.



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12. In a parallelogram, two adjacent sides measure 9 cm and 10 cm. One of its diagonals measures 17 cm. Find the area of the parallelogram.



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EXERCISE 12.1

1. A traffic signal board, indicating 'SCHOOL AHEAD', is an equilateral triangle with side 'a'. Find the area of the signal board, using

Heron's formula. If its perimeter is 180 cm, what will be the area of the signal board ?



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2. There is a slide in a park. One of its side walls has been painted in some colour with a message "KEEP THE PARK GREEN AND CLEAN" (see the given figure). If the sides of the wall are 15 m, 11 m and 6 m, find the area painted in colour.





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3. Find the area of a triangle two sides of which are 18 cm and 10 cm and the perimeter is 42 cm.



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4. Sides of a triangle are in the ratio of 12 : 17 : 25 and its perimeter is 540 cm. Find its area.



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5. An isosceles triangle has perimeter 30 cm and each of the equal sides is 12 cm. Find the area of the triangle.



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EXERCISE 12.2

1. A park, in the shape of a quadrilateral ABCD has $\angle C = 90^\circ$, $AB = 9$ m, $BC = 12$ m, $CD = 5$ m

and $AD = 8$ m. How much area does it occupy ?



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2. A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 26 cm, 28 cm and 30 cm, and the parallelogram stands on the base 28 cm, find the height of the parallelogram.



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3. A rhombus shaped field has green grass for 18 cows to graze. If each side of the rhombus is 30 m and its longer diagonal is 48 m, how much area of grass field will each cow be getting ?



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MULTIPLE CHOICE QUESTIONS

1. The sides of a triangle measure 8 cm, 12 cm and 6 cm. Then, the semiperimeter of the triangle iscm.

A. 26

B. 52

C. 13

D. 6.5

Answer: C



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2. Each side of an equilateral triangle measures 8 cm. Then, the semiperimeter of the triangle is cm.

A. 4

B. 24

C. 12

D. 36

Answer: C



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3. In a right angled triangle, the length of the hypotenuse is 15 cm and one of the sides forming right angle is 9 cm. Then, the semiperimeter of the triangle iscm.

A. 36

B. 18

C. 12

D. 15

Answer: B



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4. The ratio of the measures of the sides of a triangle is 3 : 4 : 5. If the semiperimeter of the triangle is 36 cm, the measure of the longest side of the triangle iscm.

A. 12

B. 15

C. 20

D. 30

Answer: D



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5. The area of a triangle is 48 cm^2 and one of its sides measures 12 cm. Then, the length of the altitude corresponding to this side iscm.

A. 4

B. 8

C. 16

D. 6

Answer: B



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6. The sides of a triangle measure 12 cm, 17 cm and 25 cm. Then, the area of the triangle is cm^2 .

A. 54

B. 90

C. 180

D. 135

Answer: B



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7. Two sides of a triangle measure 9 cm and 10 cm. If the perimeter of the triangle is 36 cm, then its area is cm^2

A. 17

B. 36

C. 72

D. 18

Answer: B



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8. The area of an equilateral triangle with each side measuring 10 cm is cm^2

A. $\frac{5\sqrt{3}}{2}$

B. $25\sqrt{3}$

C. $5\sqrt{3}$

D. $3\sqrt{5}$

Answer: B



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9. $\triangle ABC$ is an isosceles triangle in which $BC = 8$ cm and $AB = AC = 5$ cm. Then, area of $\triangle ABC = \dots\dots\dots \text{cm}^2$.

A. 6

B. 12

C. 18

D. 24

Answer: B



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10. ABCD is a parallelogram. If ar (ABC) = 18 cm^2 , then are (ABCD) = cm^2

A. 18

B. 9

C. 36

D. 27

Answer: C



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11. In $\triangle ABC$ $AB = 9$ cm, $BC = 12$ cm and $AC = 15$ cm. BM is an altitude on AC . Then, $BM = \dots\dots\dots$ cm.

A. 3.6

B. 7.2

C. 7.5

D. 6

Answer: B



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12. In quadrilateral $ABCD$, $AC = 10$ cm. BM and DN are altitudes on AC from B and D

respectively. If $BM = 12$ cm and $DN = 4$ cm, then

ar (ABCD) = cm^2 .

A. 160

B. 80

C. 320

D. 480

Answer: B



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13. The perimeter of rhombus ABCD is 40 cm and $BD = 16$ cm. Then, $\text{ar (ABCD)} = \dots\dots\dots\text{cm}^2$.

A. 96

B. 48

C. 24

D. 72

Answer: A



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14. The area of a rhombus is 72 cm^2 and one of its diagonals measures 16 cm. Then, the length of the other diagonal iscm.

A. 12

B. 9

C. 18

D. 15

Answer: B



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15. PQRS is a square. If $PQ = 10$ cm, then $PR =$
..... cm.

A. 10

B. 20

C. $10\sqrt{2}$

D. $2\sqrt{10}$

Answer: C



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