



MATHS

BOOKS - PSEB

HERON'S FORMULA

Exercise

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. The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 122 m, 22 m and 120 m (see Fig. 12.9). The advertisements yield an earning of ₹ 5000 per m^2 per year. A company hired one of its

walls for 3 months. How much rent did it pay?

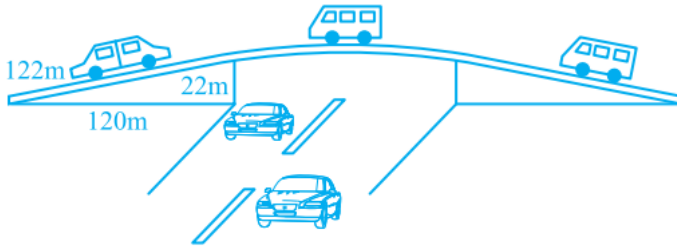


Fig. 12.9



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3. There is slide in a park. One of its side walls has been painted in some colour with a message



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4. The two sides of a triangle are 18 cm and 10 cm. Its perimeter is 42 cm. Area of this triangle is :



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



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6. An isosceles triangle has perimeter 30 cm and each of equal sides is 12 cm. Area of the triangle is :



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



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8. Find the area of a quadrilateral ABCD in which $AB = 3$ cm, $BC = 4$ cm, $CD = 4$ cm, $DA = 5$ cm and $AC = 5$ cm.



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9. The curved surface area of a right circular cylinder of height 21 cm is 132 cm². Find the diameter of the base of the cylinder.



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10. 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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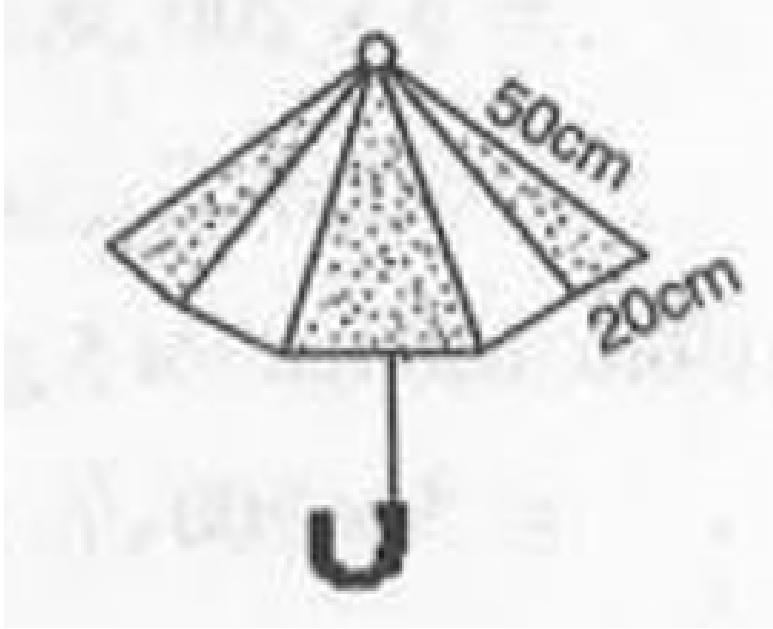
11. A rhombus shaped field has green grass for 18 cows to graze. If each side of the rhombus is 30m and its longer diagonal is 48m, grass of

how much area of grass field will each cow be getting ?



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12. An umbrella is made by stitching 10 triangular pieces of cloth of two different colours (See Fig.

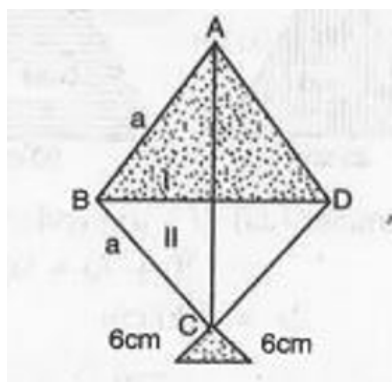


each piece measuring 20 cm, 50 cm and 50 cm.
How much cloth of each colour is required for
the umbrella ?



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13. A kite is in the shape of a square with a diagonal 32 cm and an isosceles triangle of base 8 cm and sides 6 cm each is to be made of three different shades as shown in Fig.



How much paper of each side has been used in it ?



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14. A floral design on a floor is made up of 16 tiles which are triangular, the sides of the triangle being 9 cm, 28 cm and 35 cm (See Fig. ). Find the cost of polishing the tiles at the rate of 50 p per cm^2 .



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15. A field is in the shape of a trapezium whose parallel sides are 25m and 10m. The non-parallel sides are 14m and 13 m. Find the area of the field.



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Example

1. Find the area of a triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm (see Fig. 12.6).

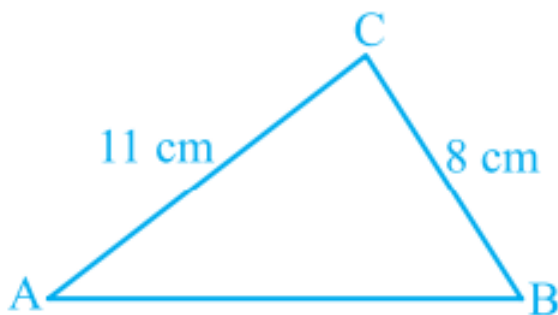



Fig. 12.6



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2. A triangular park ABC has sides 120 m, 80 m and 50 m (see fig

). A gardener Dhania has to put a fence all around it and also plant grass inside. How much area does she need to plant ?



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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. Area of

this plot is :



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4. Kamla has a triangular field with sides 200 m, 360 m, where she grew wheat. In another triangular field with sides 240 m, 320 m, 400 m adjacent to the previous field, she wanted to grow potatoes and onions (See Fig.



). She divided the field in two parts by joining the mid-point of the longest side to the opposite vertex and green potatoes in one

part and onions in the other part. How much area (in hectares) has been used for wheat, potatoes and onions ? (1 hectare = 10000 m^2)



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5. Students of a school staged a rally for cleanliness campaign. They walked through the lanes in two groups. One group walked through the lanes AB, BC and CA while the other through AC, CD and DA (See Fig.



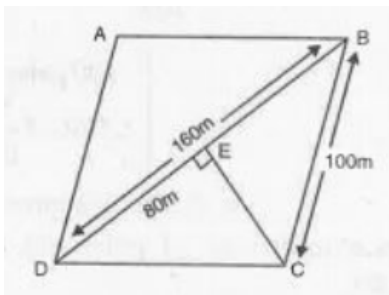
). Then they cleaned the area enclosed

within their lanes. If $AB = 9\text{ m}$, $BC = 40\text{ m}$, $CD = 15\text{ m}$, $DA = 28\text{ m}$ and $\angle B = 90^\circ$, which group cleaned more area and by how much ? Find the total area cleaned by the students.



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6. Sanya has a piece of land which is in the shape of a rhombus (See Fig.



).

She wants her four children to work on the land and produce different crops to suffice the needs of their family. She divided the land in four parts by joining its opposite comers. If the perimeter of the land is 400 m and one of the diagonals is 160 m, how much area each child will get to work on.



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