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Worksheet: Heron's formula

1. A triangle has one side 17 cm, and the difference between the other two sides is 3 cm. If the perimeter is 42 cm, find the area.

2. Find the area of a parallelogram with adjacent sides of 60 m and 40 m and a diagonal of 80 m.

3. Find the area of an equilateral triangle with side length 10 cm using Heron's formula.

4. Calculate the area of a triangle with sides 35 cm, 54 cm, and 61 cm, and also find the length of its smallest altitude.

5. Calculate the rent paid by a company that hired a triangular flyover wall for 3 months, given the wall's sides are 122 m, 22 m, and 120 m, and the advertisement rate is ■5000 per m² per year.

6. For a triangle with sides of lengths 35 cm, 54 cm, and 61 cm, determine its area and the length of the altitude corresponding to the 54 cm side.

7. Find the area of a quadrilateral field ABCD where angle C is 90 degrees, AB = 9 meters, BC = 12 meters, CD = 5 meters and AD = 8 meters.

8. A triangle has an area of 84 cm² and its sides are in the ratio 7:8:9. Find the lengths of the sides.

9. The perimeter of an isosceles triangle is 32 cm. The ratio of the equal side to its base is 3:2. Find the area of the triangle.

10. Determine the area of an isosceles triangle with a perimeter of 30 cm and equal sides measuring 12 cm each.

11. A park is in the shape of a quadrilateral ABCD, where angle C is 90 degrees. The sides are: AB = 9 meters BC = 12 meters, CD = 5 meters, AD = 8 meters. How much area does the park occupy?

12. A triangular flower bed has sides measuring 18 meters, 24 meters, and 30 meters. A gardener wants to plant grass over it. How many square meters of grass is needed?

13. A triangle has sides of lengths a, b, and c, where a = 2√3 cm, b = 4 cm, and c = 2√3 cm. Find the area using Heron's formula.

14. A rhombus-shaped field with sides of 30 m and a longer diagonal of 48 m provides grazing grass for 18 cows. Calculate the area of grass available per cow.

15. Find the area of a triangle whose two sides are 18 cm and 10 cm, and the perimeter is 42 cm.

16. The sides of a triangular swimming pool are 30 m, 40 m, and 50 m. What is its surface area?

17. A kite-shaped field is made of two congruent right triangles with sides 13 m, 12 m, and 5 m. Find the total area of the field.

18. An equilateral triangle has an area of 81√3 cm². Find the length of each side using Heron's formula.

19. The sides of a triangle are in the ratio of 12:17:25, and its perimeter is 540 cm. Find its area.