

SUBJECT-MATHEMATICS, CLASS – IX
CHAPTER 8-(HERON'S FORMULA)
WORKSHEET (BASIC)

Very Short Answer type Questions(1 mark each)

1. The semi perimeter of a triangle having the length of its sides as 20 cm, 15 cm and 9 cm is
(a) 44 cm (b) 21 cm (c) 22 cm (d) None
2. The angles of a triangle are in the ratio 5:3:7, then the triangle is
(a) Acute angled (b) Obtuse angled (c) Right triangle (d) Isosceles triangle
3. The base of an isosceles triangle whose area is 12 cm^2 and one of the equal sides is 5 cm is
(a) 6 cm (b) 8 cm (c) Both a and b (d) None of these
4. The length of each side of an equilateral triangle having an area of $9\sqrt{3} \text{ cm}^2$ is
(a) 8 cm (b) 36 cm (c) 4 cm (d) 6 cm
5. The length of the perpendicular drawn on the longest side of a scalene triangle is
(a) Largest (b) Smallest (c) No relation (d) None
6. Semi perimeter of scalene triangle of side k, 2k and 3k is
(a) k (b) 2k (c) 3k (d) None
7. The length of each side of an equilateral triangle having an area of $9\sqrt{3} \text{ cm}^2$ is
(a) 8 cm (b) 36 cm (c) 4 cm (d) 6 cm
8. If the area of an equilateral triangle is $16\sqrt{3} \text{ cm}^2$, then the perimeter of the triangle is
(a) 48 cm (b) 24 cm (c) 12 cm (d) 36 cm
9. An isosceles right triangle has an area 8 cm^2 . The length of its hypotenuse is
(a) $\sqrt{32}$ cm (b) $\sqrt{16}$ cm (c) $\sqrt{48}$ cm (d) $\sqrt{24}$ cm
10. The edges of a triangular board are 6 cm, 8 cm and 10 cm. The cost of painting it at `0.09 per cm^2 is
a) `2.00 b) `2.16 c) `2.48 d) `3.00

Short Answer type-I questions(2 marks each)

11. Find the area of an equilateral triangle with side 10 cm.
12. If the angles of a triangle are in the ratio 2:3:4 find the angles of the triangle.
13. The area of a triangle is 48 cm^2 . If its base is 12 cm, find its altitude.
14. The hypotenuse of an isosceles right triangle is 10 cm. Find its area.
15. A rhombus has perimeter 120 m and one of its diagonal is 50m. Find the area of the rhombus.

Short Answer type-II questions(3 marks each)

16. The area of an equilateral triangle is $2\sqrt{3} \text{ cm}^2$. Find its perimeter.
17. The area of an equilateral triangle is $81\sqrt{3} \text{ cm}^2$, find its height.
18. Find the area of a triangle whose sides are 13cm, 14cm and 15 cm respectively.
19. Find the area of an isosceles triangle whose equal sides measure 13 cm each and the base measures 24 cm.
20. Prove that the area of a quadrilateral ABCD is $4(\sqrt{3} + 2\sqrt{2}) \text{ m}^2$. AB = 6cm, BC = 6cm, CD = 4cm and AD = 4cm and diagonal AC = 4 cm.

Long Answer type questions(4 marks each)

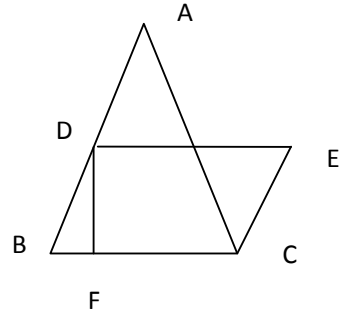
21. The perimeter of a triangle is 54 cm and its sides are in the ratio 5:6:7. Find the area of the triangle.
22. The sides of a triangle are 35 cm, 54 cm and 61 cm respectively. Find the length of its longest altitude.
23. The edges of a triangular board are 6cm, 8cm and 10 cm. Find the cost of painting it at the rate of 25 paisa per cm^2 .
24. Find the perimeter of an equilateral triangle whose area is equal to that of a triangle with sides 21cm, 16cm and 13cm.

25. OABC is a rhombus whose three vertices A, B and C lie on a circle with centre O. If the radius of the circle is 10 cm, find the area.

26. Find the area of a trapezium whose parallel sides are 77cm, 60cm and the other two sides are 25cm and 26cm.

27. The perimeter of a right angled is 144cm and its hypotenuse measures 65cm. Find the length of other sides and calculate its area. Verify the result using Heron's formula.

28. In fig. $\triangle ABC$ has sides $AB = 7.5\text{cm}$, $AC = 6.5\text{ cm}$ and $BC = 7\text{ cm}$. On base BC, a parallelogram DBCE is constructed. Find the height DF of the parallelogram.



29. Find the perimeter of an isosceles right triangle having an area equal to 200 cm^2 .

30. The area of an isosceles right triangle is 128 cm^2 . Find the length of its hypotenuse.

SUBJECT-MATHEMATICS, CLASS – IX
CHAPTER 8-(HERON'S FORMULA)
WORKSHEET (STANDARD)

(Each question carries 1 mark)

1. The area of an equilateral triangle is $16\sqrt{3} \text{ cm}^2$, then the perimeter of the triangle is
(a) 48 cm (b) 24 cm (c) 12 cm (d) 306 cm
2. The perimeter of an equilateral triangle is 60 m. The area is
(a) $10\sqrt{3} \text{ m}^2$ (b) $15\sqrt{3} \text{ m}^2$ (c) $20\sqrt{3} \text{ m}^2$ (d) $100\sqrt{3} \text{ m}^2$
3. The area of an isosceles triangle with sides 17 cm, 17 cm and 30 cm is
(a) 289 cm^2 (b) 240 cm^2 (c) 60 cm^2 (d) 120 cm^2
4. The cost of levelling the ground in the form of triangle having sides 51m, 37m and 20m at the rate of ₹3 per m^2 is
a) ₹306 b) ₹918 c) ₹725 d) ₹900
5. If the side of a rhombus is 10cm and one diagonal is 12cm, then area of rhombus is
i) 96 cm^2 ii) 48 cm^2 iii) 72 cm^2 iv) 80 cm^2

Short Answer type-I questions (2 marks each)

6. The perimeter of a right triangle is 24 cm. If its hypotenuse is 10 cm, find its area.
7. Find the cost of laying grass in a triangular field of sides 50 m, 65 m and 65 m at the rate of Rs 7 per sq.m.
8. The perimeter of a triangular field is 420 m and its sides are in the ratio 6:7:8. Find the area of the triangular field. Find the area of a cyclic rhombus of each side 3cm.
9. A rhombus has perimeter 120 m and one of its diagonal is 50m. Find the area of the rhombus.
10. The sides of a triangle are 35cm; 54cm and 61cm. Find the length of its longest altitude.

Short Answer type-I questions (3 marks each)

11. The length of a median of an equilateral triangle is x cm. Find its area.

12. Find the area of a regular hexagon whose side is a .

13. A rectangular plot is given for constructing a house, having a measurement of 40 m long and 15 m in the front. According to the laws, a minimum of 3 m, wide space should be left in the front and back each and 2 m wide space on each of other sides. Find the largest area where house can be constructed.

14. A field is in the shape of a trapezium having parallel sides 90 m and 30 m. These sides meet the third side at right angles. The length of the fourth side is 100 m. If it costs Rs 4 to plough 1m^2 of the field, find the total cost of ploughing the field.

15. A rhombus shaped sheet with perimeter 40 m and one diagonal 12 m, is painted on both sides at the rate of Rs 5 per m^2 . Find the cost of painting.

Long Answer Type question (4 marks each)

16. From a point in the interior of an equilateral triangle, perpendiculars drawn on the three sides. The lengths of the perpendiculars are 14cm; 10cm and 6cm. Find the area of the triangle.

17. If each side of a triangle is doubled, then find the ratio of area of the new triangle thus formed and the given triangle. Also find the percentage increase in area.

18. A triangular park in a city has lengths of sides as 100cm, 90cm and 110cm. A contract is given to a company for planting grass in the park at the rate of $\text{Rs } 4000$ per hectare. Find the amount to be paid to the company. ($\sqrt{2} = 1.414$)

19. A piece of land is in the shape of a trapezium whose parallel sides are 50m and 35m. The non-parallel sides are 30m and 35m. Prove that the area of the land is $\frac{1700}{3}\sqrt{5}\text{m}^2$

20. The length of two adjacent sides of a parallelogram is 7cm and 12cm. One of its diagonals is 25cm long. Find the area of the parallelogram. Also, find the length of altitude from vertex on the side of length 12cm.