

**Sample Paper – 2012**  
**Class – IX**  
**Subject – Mathematics**

**Topic- HERON'S FORMULA**

**Multiple Choice Questions (5×1)**

Choose the correct answer from the given four options in the following questions:

1. Two sides of a triangle are 8cm and 11cm and its perimeter is 32cm. The third side is :

- (a) 4cm    (b) 13cm    (c) 14cm    (d) 16cm

2. The base of a triangle is 12cm and height is 8cm .Its area is:

- (a) 24cm<sup>2</sup>    (b) 96cm<sup>2</sup>    (c) 48cm<sup>2</sup>    (d) none

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

- (a) 60m,100m,40m    (b) 50m,80m,60m    (c) 45m,75m,95m    (d) none

4. What will be the area of quadrilateral ABCD if AB =3cm, BC=4cm, CD=4cm, DA=5cm and AC=5cm.

- (a) 12.5cm    (b) 15.2cm    (c) 18.2cm    (d)19.2cm

5. An isosceles triangle has perimeter 30cm and each of equal side is 12cm .Area of triangle is:

- (a)  $8\sqrt{15}\text{cm}^2$     (b)  $7\sqrt{12}\text{cm}^2$     (c)  $9\sqrt{15}\text{cm}^2$     (d)none

6 . The perimeter of a triangle is 60cm. If its sides are in the ratio 1:3:2, then its smallest side is

- (a) 15    (b) 5    (c) 10    (d) none of these.

7 . The perimeter of a triangle is 36cm. If its sides are in the ratio 1:3:2, then its largest side is

- (a) 6    (b) 12    (c) 18    (d) none of these

8. If the perimeter of a rhombus is 20cm and one of the diagonals is 8cm. The area of the rhombus is

- (a) 24 sq cm    (b) 48 sq cm    (c) 50 sq cm    (d) 30 sq cm

9. One of the diagonals of a rhombus is 12cm sides area is 54 sq cm. the perimeter of the rhombus is

- (a) 72 cm    (b) 3 10 cm    (c) 6 10 cm    (d) 1210cm

10. Two adjacent side of a parallelogram are 74cm and 40cm one of its diagonals is 102cm. area of the ||gram is

(A) 612 sq m

(B) 1224 sq m

(C) 2448 sq m

(D) 4896 sq m

Fill in the blanks (4×1)

**Complete the following sentences**

1. Area of an equilateral triangle with side 'a' is \_\_\_\_\_.
2. If a, b, and c are the three sides of a triangle then by Hero's formula area is \_\_\_\_\_.
3. In Heron's formula semi perimeter is equal to \_\_\_\_\_.
4. Area of a right angled triangle is \_\_\_\_\_.

**Subjective Questions (5×2)**

1. The area of a parallelogram is  $392\text{m}^2$ . If its altitude is twice the corresponding base, determine the base and height.
2. The adjacent sides of a parallelogram are 36cm and 27cm in length. If the distance between the shorter sides is 12cm, find the distance between the longer sides.
3. A rectangular lawn, 75m by 60m, has two roads, each 4m wide, running through the middle of the lawn, one parallel to length and other parallel to breadth. Find the cost of gravelling the roads at Rs 5.50 per  $\text{m}^2$
4. Using Heron's formula, find the area of an equilateral triangle if its side is 'a' units.
5. Find the percentage increase in the area of a triangle if its each side is doubled.

**HOTS (High Order Thinking Skills) Questions: (4×3)**

1. Find the area of quadrilateral ABCD whose sides in meters are 9, 40, 28 and 15 respectively and the angle between first two sides is a right angle.
2. The difference between the sides containing a right angle in a right angled triangle is 14cm. The area of a triangle is  $120\text{cm}^2$ . Calculate the perimeter of a triangle.
3. The perimeter of a right triangle is 24 cm. If its hypotenuse is 10 cm, find the other two sides. Find its area by using the formula area of a right triangle. Verify your result by using Heron's formula.
4. The sides of a triangle are 39cm, 42cm and 45cm. A parallelogram stands on the greatest side of the triangle and has the same area as that of the triangle. Find the height of the parallelogram
5. A parallelogram, the length of whose side is 60m and 25m has one diagonal 65m long. Find the area of the parallelogram