Holiday Homework (Mathematics) – Class IX

Number System

Express 0.333... as a rational number in the form p/q.

- 2. Find the decimal expansion of 4/7.
- 3. Write 0.125 as a rational number in p/q form.
- 4. Convert the repeating decimal 0.7272... into a fraction.
- 5. Determine whether $\sqrt{5}$ is rational or irrational.
- 6. Simplify: $(\sqrt{2} + \sqrt{3})^2$.
- 7. Find the least rational number greater than 2.
- 8. Express 3.14159 as a rational number.
- 9. Is the sum of two irrational numbers always irrational? Justify.
- 10. Find the value of x if $x^2 = 7$.

Coordinate Geometry

- 1. What are the coordinates of the origin?
- 2. In which quadrant does the point (-3, 7) lie?
- 3. Write the coordinates of a point that lies on the X-axis and is 4 units to the left of the origin.
- 4. Write the coordinates of a point that lies on the Y-axis and is 5 units below the origin.
- 5. Plot the points A (3, 0), B (0, 4), and C (3, 4). What figure is formed by joining these points?
- 6. Write the coordinates of a point whose abscissa is -5 and ordinate is 0.
- 7. Find the area of the triangle formed by the points O (0, 0), A (6, 0), and B (0, 8).
- 8. Plot the points (-2, -3), (2, -3), (2, 3), and (-2, 3). What figure do they form?
- 9. Name the quadrant in which the point (-6, -4) lies.
- 10. If the x-coordinate of a point is 0, where does the point lie?

Heron's Formula

- 1. Find the area of a triangle with sides 7 cm, 8 cm, and 9 cm.
- 2. A triangle has sides 10 cm, 24 cm, and 26 cm. Calculate its area.
- 3. The sides of a triangle are 13 cm, 14 cm, and 15 cm. Find its area.
- 4. A triangle has sides 8 cm, 15 cm, and 17 cm. Determine its area.
- 5. The perimeter of a triangle is 30 cm, and its sides are in the ratio 3:4:5. Find its area.
- 6. A triangular park has sides 20 m, 21 m, and 29 m. calculate its area.
- 7. The sides of a triangle are 9 cm, 12 cm, and 15 cm. Find its area.
- 8. A triangle has sides 11 cm, 60 cm, and 61 cm. Calculate its area.
- 9. The sides of a triangle are 14 cm, 48 cm, and 50 cm. Find its area.
- 10. A triangle has sides 7 cm, 24 cm, and 25 cm. Determine its area.