

**SAINIK SCHOOL AMBIKAPUR**  
**WINTER VACATION HOMEWORK 2024**  
**SUBJECT : MATHEMATICS**  
**CLASS : IX**

**Do all the following Activities :-**

1. To construct a square-root spiral.
2. To represent some irrational numbers on the number line.
3. To verify the algebraic identity:  $a^2 - b^2 = (a + b)(a - b)$
4. To verify the algebraic identity:  $(a + b)^3 = a^3 + b^3 + 3a^2b + 3ab^2$
5. To find the values of abscissae and ordinates of various points given in a cartesian plane.
6. To verify experimentally that if two lines intersect, then (i) the vertically opposite angles are equal (ii) the sum of two adjacent angles is  $180^\circ$  (iii) the sum of all the four angles is  $360^\circ$ .
7. To verify that the sum of the angles of a triangle is  $180^\circ$ .
8. To verify exterior angle property of a triangle.
9. To verify experimentally that the sum of the angles of a quadrilateral is  $360^\circ$ .
10. To verify experimentally that the parallelograms on the same base and between same parallels are equal in area.