

**Lab Activities of Mathematics (2024-25)**  
**XII**

Month	Practical/Activity to be conducted
April	1. To verify experimentally that the relation $R$ in the set $L$ of all lines in a plane, defined by $R = \{(l, m) : l \perp m\}$ is symmetric but neither reflexive nor transitive. 2. To verify experimentally that the relation $R$ in the set $L$ of all lines in a plane, defined by $R = \{(l, m) : l \parallel m\}$ is an equivalence relation.
May	3. To demonstrate a function which is not one-one but is onto by inspection method. 4. To demonstrate a function which is one-one but not onto by inspection method.
July	5. To draw the graph of $\sin^{-1} x$ , using the graph of $\sin x$ and demonstrate the concept of mirror reflection (about the line $y = x$ ). 6. To sketch the graphs of $a^x$ and $\log(x)$ , $a > 0$ , $a \neq 1$ and to examine that they are mirror images of each other.
August	7. To find analytically the limit of a function $f(x)$ at $x = c$ and also to check the continuity of the function at that point. 8. To understand the concepts of decreasing and Increasing functions graphically.
October	9. To understand the concepts of local maxima, local minima and point of Inflexion by graphical method. 10. To understand the concepts of absolute maximum and minimum values of a function in a given closed interval through its graph.
November	11. To verify that amongst all the rectangles of the same perimeter, the square has the maximum area by using rectangle and square kits. 12. To evaluate the definite integral $\int_a^b x \, dx$ as the limit of a sum and verify it by actual integration.
December	13. To verify that angle in a semi-circle is a right angle, using vector method. 14. To measure the shortest distance between two skew lines and verify it analytically.
January	15. To understand the concepts of local maxima, local minima and point of Inflexion by graphical method. (Revision.) 16. To verify that amongst all the rectangles of the same perimeter, the square has the maximum area by using rectangle and square kits. (Revision.)
February	17. To evaluate the definite integral $\int_a^b x \, dx$ as the limit of a sum and verify it by actual integration. (Revision.) 18. To verify that angle in a semi-circle is a right angle, using vector method. (Revision.)