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| WEEK 1 | Set Theory - Number system, Sets and their operations, Relations and functions - Relations and their types, Functions and their types |
| WEEK 2 | Rectangular coordinate system, Straight Lines - Slope of a line, Parallel and perpendicular lines, Representations of a Line, General equations of a line, Straight-line fit |
| WEEK 3 | Quadratic Functions - Quadratic functions, Minima, maxima, vertex, and slope, Quadratic Equations |
| WEEK 4 | Algebra of Polynomials - Addition, subtraction, multiplication, and division, Algorithms, Graphs of Polynomials - X-intercepts, multiplicities, end behavior, and turning points, Graphing & polynomial creation |
| WEEK 5 | Functions - Horizontal and vertical line tests, Exponential functions, Composite functions, Inverse functions |
| WEEK 6 | Logarithmic Functions - Properties, Graphs, Exponential equations, Logarithmic equations |
| WEEK 7 | Sequence and Limits - Function of One variable - • Function of one variable • Graphs and Tangents • Limits for sequences • Limits for function of one variable • Limits and Continuity |
| WEEK 8 | Derivatives, Tangents and Critical points - • Differentiability and the derivative • Computing derivatives and L’Hˆopital’s rule • Derivatives, tangents and linear approximation • Critical points: local maxima and minima |
| WEEK 9 | Integral of a function of one variable - • Computing areas, Computing areas under a curve, The integral of a function of one variable • Derivatives and integrals for functions of one variable |
| WEEK 10 | Graph Theory - Representation of graphs, Breadth-first search, Depth-first search, Applications of BFS and DFS; Directed Acyclic Graphs - Complexity of BFS and DFS, Topological sorting |
| WEEK 11 | Longest path, Transitive closure, Matrix multiplication Graph theory Algorithms - Single-source shortest paths, Dijkstra's algorithm, Bellman-Ford algorithm, All-pairs shortest paths, Floyd–Warshall algorithm, Minimum cost spanning trees, Prim's algorithm, Kruskal's algorithm |
| WEEK 12 | Revision |