

## Topics for MA 22000

1. Identifying a polynomial, its degree, and its leading term or coefficient
2. Identifying a monomial (term), binomial, or trinomial. Identifying how many terms are in a polynomial
3. Addition or Subtraction of polynomials
4. Identifying a function from a mapping, set, equation, or graph
5. Stating a domain (sometimes range) of functions using sets or interval notation
6. Using function notation, finding a function value for a given independent value
7. Graphing linear functions
8. Using functions of applied problems to find information
9. Multiplication of polynomials
10. Multiplication of the sum and difference of two terms, squaring a binomial
11. Solving a linear equation of one variable
12. Solving rational equations
13. Solving quadratic equations using factoring or the quadratic formula
14. Solving some applied problems using linear, rational, or quadratic equations
15. Finding the slope of a line from its graph or from two points
16. Finding an equation in two variables giving a slope and a point or two points
17. Using some techniques to find limits of functions given a function or graph (if the limits exist)
18. Finding an average rate of change for a function
19. Finding instantaneous rate of change at a value using a limit or a derivative
20. Applied problems (rates of change): velocity and acceleration; cost, revenue, and profit
21. Limit definition of a derivative
22. Using basic techniques to find derivatives
23. Using the chain rule to find derivatives
24. Understanding exponential and logarithmic functions
25. Solving some exponential and logarithmic equations
26. Using the properties of logarithms
27. Using the change of base theorem for logarithms
28. Some applied problems involving exponential expressions or logarithmic expressions/equations
29. Derivatives of natural exponential and natural logarithmic functions
30. Using the first derivative test to determine intervals where a function is increasing/decreasing or constant
31. Some applied problems: increasing or decreasing intervals
32. Finding relative maximum or minimum values and where they occur
33. Some applied problems finding relative extrema
34. Finding higher derivatives
35. Using the second derivative sign chart to find intervals of concavity and any point(s) of inflection
36. Finding some limits at infinity
37. Find vertical or horizontal asymptotes for some rational functions
38. Using information from 1<sup>st</sup> or 2<sup>nd</sup> derivatives and algebra to sketch some curves
39. Finding absolute extrema in a closed interval for a function
40. Some applied problems about absolute maximum or absolute minimum