

Precalculus Quarterly 1 Topic List:

Chapter 1: Functions

- Finding domain (identifying domain and range on a graph)
- Checking if a polynomial is a function or if it is one-to-one
- odd and even functions
- Identifying when graphs are increasing and decreasing
- Transformations of functions (factor, reflect, stretch and shrink, translate)
- Combinations of functions (adding, subtracting, multiplying and dividing functions) and composition of functions.
- Graphing piecewise functions
- Finding function values
- Inverse functions (finding the inverse, proving functions are inverses, what happens to domain and range)
- Profit function ($\text{profit} = \text{revenue} - \text{cost}$)

Chapter 2: Polynomial Functions

- Quadratic functions –
 - Identifying quadratic functions and putting them in standard form
 - finding the vertex, x and y-intercepts, and axis of symmetry
 - finding the maximum or minimum given an equation
- Polynomial functions of higher degree-
 - identifying end behavior of a given function
 - Identifying zeros and the behavior at the zero (multiplicity- cross or bounce)
 - Identifying domain and finding range
 - Using long division and synthetic division
 - Rational root test, Descartes's rule, upper and lower bounds
 - Factor theorem and remainder theorem
 - Know how to find all zeros of a function (real and imaginary)
 - The difference between zeros, x-intercepts, and factors
- Complex numbers – writing complex numbers in standard form