

Advanced Precalculus

Test #2: 250 Points

Wednesday 2/22/12

I. Polynomial Basics

- Know turning points, maximum, minimum, increasing, decreasing, and end behavior
- Know how to identify these key features of a graph, using a calculator (2nd Trace... select option... interpret)
- Know basic properties of the factored form of a polynomial compared to its graph

II. Polynomial Long Division / Synthetic Division

- Know how to perform polynomial long division
- Know how (and when) to perform synthetic division
- Know the $p(x) = d(x)q(x) + r(x)$ form
- Know the result about the degree of the remainder
- Watch for missing terms in a polynomial (need to use “0” in division)
- Watch for synthetic division... dividing by something such as $(2x + 3)$

III. Factoring Polynomials and Applications

- Know and be able to use the Rational Zeros Theorem
- Know and be able to use the Remainder Theorem and Factor Theorem
- Know and be able to use the Conjugate Zeros Theorem
- Know the Fundamental Theorem of Algebra (should be “obvious”)
- Know how to factor a polynomial completely
 - Synthetic Division after finding a rational zero... check for repeat!
 - Long Division after “foiling” or “expanding” conjugate zeros / factors
 - Take your time and be careful!
- Be able to use the idea of factoring to solve equations
- Be able to use the idea of factoring to graph the polynomial “by hand”

IV. Solving Polynomial Inequalities

- Get all terms on one side of the inequality
- Factor completely
- Find the key numbers
- Create a sign chart
- Determine answer “regions”
- Write the answer in Interval Notation

This is an outline of the “main ideas” of Unit 2.

Anything we have done in Unit 2 is “fair game” - including all problems from Quiz #2 and WA #2.

This is the last grade for Grade Period #1 – take responsibility for your performance!

If you have put the time in, be confident and prepared!