Precalculus Unit 2: 2.2 Notes
Polynomial Functions of a Higher Degree

Graphs of Polynomial Functions:

    A)

    B)

    Compare the graphs of $f(x) = x^2$, $f(x) = x^4$, and $f(x) = x^6$ on the same calculator screen. What similarities do you notice?

    Now zoom in or change your window to xmin = -2, xmax = 2, ymin = -2, and ymax = 2. What do you now notice about the graphs?

    Compare the graphs of $f(x) = x^3$, $f(x) = x^5$, and $f(x) = x^7$ on the same calculator screen. What similarities and what differences do you notice?

Leading Coefficient Test: Describes the end behavior of a polynomial function

    A)

    B)

Zeros of Polynomial Functions:

    A)

    B)

Finding Zeros (Roots, solutions):

** If $x = a$ is a zero for function f, then $(x - a)$ is a factor and the point $(a, 0)$ is an x – intercept.

EX 1: $f(x) = x^2 - 25$

EX 2: $g(x) = x^2 + 10x + 25$

EX 3: $f(t) = t^3 - 4t^2 + 4t$

EX 4: $h(x) = x^4 - x^3 - 20x^2$

EX 5: $g(x) = t^5 - 6t^3 + 9t$

EX 6: $f(x) = x^3 - 4x^2 - 25x + 100$

EX 7: $h(x) = 27x^3 - 64$

Multiplicity:

A)

B)

Solving on the Calculator:

EX 8: $g(x) = x^5 + 3x^3 - x + 6$