MATH 156: Precalculus
Fall 2015
Worksheet §3.2: Polynomial Functions and Their Graphs

This section is a detailed look at polynomial functions. By the end of this section, you want to be able to:

1. identify a polynomial function, its degree, its coefficients, and its leading coefficient.
2. be familiar with the common properties of polynomials.
3. describe the end behavior of a polynomial.
4. draw an approximate sketch of a polynomial function using its factored form.

A polynomial function has the form:

List some properties of polynomial functions:

For each function below: (a) Find the x- and y-intercepts of f.
(b) Describe the end behavior of f.
(c) Sketch the graph of f.
(d) Determine how many local maxima and minima f has.

Example 1: Let $f(x) = (x + 4)(x + 1)(x - 5)$.

Example 2: $f(x) = (x+1)^2(x-5)$

Example 3: $h(x) = 16x^3 - x^7$

Example 4: $g(x) = x^4 - 2x^3 + 8x - 16$.