Pre-Calc. 12

In this section we will use the characteristics of a polynomial functions to help us sketch their graphs.

- 1. Determine the *degree* (quadratic, cubic, quartic, 5th degree...
- 2. Determine the number of *turning points*
- 3. The sign (+ or -) of the leading coefficient will help us determine the *end behavior* (starts up or down / ends up or down)
- 4. Determine the zeros (x-intercepts, roots) and their multiplicity
- 5. Determine the *y*-intercepts (the constant term)
- 6. Determine the general direction at each x-intercept
- 7. Look at the values of "x" between the x-intercepts to estimate the *relative max* (highs) and *relative min* (lows) of the graph; create a table of values
- 8. Plot a reasonable number of points to draw a smooth continuous curve

<u>Ex.</u>

On a separate sheet of paper graph $y = x^2 (3-x) (x^2+1)$