Name:_____ Date:_____

Class worksheet: Alg2H
Polynomials: Factors, roots, zeros
(book chapter 11)

Example polynomial:

$$P(x) = x^5 - 9x^4 + 31x^3 - 53x^2 + 48x - 18$$

Degree of polynomial: ____ Leading Coefficient: ____

End behavior: _____

Factoring:

$$P(x) = (x - 1) \cdot (x^4 - 8x^3 + 23x^2 - 30x + 18)$$

Factor Theorem:

Roots:

Fundamental theorem of Algebra.

Complex roots

Back to our polynomial:

$$P(x) = x^5 - 9x^4 + 31x^3 - 53x^2 + 48x - 18$$

End behavior:

Factoring:

$$P(x) = (x-1) \cdot (x-3)^2 \cdot (x^2 - 2x + 2)$$

Roots:

1. _____
2. _____
3. _____
4. _____
5. _____

y-intercept: _____

Plotting: