Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_

Class worksheet: Alg2H

Polynomials: Factors, roots, zeros

(book chapter 11)

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| Example polynomial:$$P\left(x\right)= x^{5}-9x^{4}+31x^{3}-53x^{2}+48x-18$$ |
| Degree of polynomial: \_\_\_\_ Leading Coefficient: \_\_\_\_End behavior: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Factoring:$$P\left(x\right)=\left(x-1\right)⋅(x^{4}-8x^{3}+23x^{2}-30x+18)$$ |
| Factor Theorem: |

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| Roots:Fundamental theorem of Algebra. |
| Complex roots |

Back to our polynomial:

$$P\left(x\right)= x^{5}-9x^{4}+31x^{3}-53x^{2}+48x-18$$

End behavior:

Factoring:

$$P\left(x\right)=\left(x-1\right)⋅\left(x-3\right)^{2}⋅(x^{2}-2x+2)$$

Roots:

1. \_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_

y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plotting: