Secondary 3 Honors: **Polynomials Review** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe the end behavior using limits.

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| 1. $f\left(x\right)=-x^{6}+4x^{2}+2x-5$
 | 1. $f\left(x\right)=-4x^{3}+6x^{2}+2$
 |

State the degree, list zeros, state multiplicity, what happens at that zero and then sketch the graph of the polynomial by hand.

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| 1. $f\left(x\right)=x^{2}\left(x+4\right)^{3}\left(x-2\right)^{3}$
 | 1. $f\left(x\right)=-x^{4}+6x^{3}+17x^{2}-78x+56$
 |

Divide using long division and write a summary statement.

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| 1. $\left(3x^{3}-16x^{2}+x+23\right)÷(x-5)$
 |

Divide using synthetic division and write a summary statement.

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| 1. $\left(2x^{4}+x^{3}+5x^{2}-2x-8\right)÷(x+4)$
 | 1. $\left(x^{4}+5x-1\right)÷(x+1)$
 |

Use the Remainder Theorem to find the remainder when f(x) is divided by $x-k$.

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| 1. $f\left(x\right)=4x^{3}-22x^{2}+3x+7 k=-1$
 | 1. $f\left(x\right)=-x^{4}+2x+6 k=3$
 |

Use the Rational Zeros Theorem to write a list of all potential rational zeros. Then determine which ones, if any, are zeros.

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| 1. $f\left(x\right)=x^{3}+2x^{2}-x+8$
 |

Write a polynomial function of minimum degree in standard form with real coefficients whose zeros include those listed.

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| 1. $0, 4, and 1+\sqrt{3}i $
 |

State how many zeros the function has and identify how many are complex and how many are real.

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| 1. $f\left(x\right)=3x^{3}-4x^{2}+21x-28 $
 |

Find all zeros of the function and write in factored form.

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| 1. $f\left(x\right)=x^{3}-21x-20$
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