GSE Advanced Algebra II Unit 2A - Polynomials Test Review

Name: _____ Date: _____

Use the following to review for you test. Work the practice problems on a separate sheet of paper.

What you need to know & be able to do	Things to remember	Problem	Problem
Classify Polynomials	• Write all answers in **Standard Form** - Highest Exp to Lowest • Classify Polynomials based on Degree and # terms • Leading Coeff – First coeff in standard form • Constant – Term without a variable	1. List all the names for: **Degree:** 0 - _____ 1 - _____ 2 - _____ 3 - _____ 4 - _____ 5 - _____ **Number of terms:** 1 - _____ 2 - _____ 3 - _____ 4 - _____	2. $f(x) = x + 2 - x^2 - 4x^4$ standard form: _____ leading coefficient: _____ constant: _____ name by degree: _____ name by # terms: _____
Adding and Subtracting	Adding: • Combine like terms Subtracting: • Distribute the negative • Combine like terms	3. $(3x^2 + 7 + x) + (14x^3 + 2 + x^2 - x)$	4. $(1 - x^2) - (3x^2 + 2x - 5)$
Multiply Polynomials	• Distribute every term • Box Method • Multiply numbers, add exponents • Answers in standard form	5. $(3 + x)(2x^2 + 9x - 6)$	6. $(x - y)(x^2 - xy + y^2)$
Binomial Expansion	• Know Pascal's Triangle • Answers must be in standard form	7. $(x - 3y)^4$	8. $(4x + 5)^3$

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<tr>
<td>Binomial Expansion with Imaginary Numbers</td>
<td>• Know " i " chart
• Convert " i " to simplest form
• Add real terms together
• Add imaginary terms together
• Answers must be in standard form a+bi</td>
<td>8. $(3+2i)^3$</td>
<td>9. $(i-4)^4$</td>
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<tr>
<td rowspan="3">Dividing Polynomials
(topic cont'd on next page)</td>
<td rowspan="3">Missing terms need "0"
<u>Synthetic Division</u>
• Use when divisor is degree of one
• Solve divisor
• Use coefficients of dividend
• Answer degree is one less
<u>Long Division</u>
• Use when divisor's degree is not one
• Negate the sign when multiply down
• Bring Down next term</td>
<td>10. $(x^4-3x^3-7x-14)\div(x-4)$</td>
<td rowspan="3">12. $(8x^4+2x^2-12x+9)$
$\div\ (x^2+x-3)$</td>
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<tr>
<td>13. $x^4 + 2x^2 - 2 \div x^2 + 3$</td>
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<tr>
<td>14. $(4x^2+5x+1)\div(x+1)$</td>
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<tr>
<td rowspan="2">Imaginary and Complex Numbers</td>
<td>Add and Subtract</td>
<td>15. $i(8+2i)-4i(10-3i)$</td>
<td>16. $2i^{14}-5i^7+3i^2-4$</td>
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<tr>
<td>Multiply</td>
<td>17. $(2-3i)^2$</td>
<td>18. $(2+i)(3-i)-4(i-1)$</td>
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