***Algebra II SOL Review: Expressions and Operations Edited from VBCPS “Review Skills Notes Practice 2014”***

**SOL AII.1 The student, given rational, radical, or polynomial expressions, will**

 **a) add, subtract, multiply, divide, and simplify rational algebraic expressions;**

***Hints and Notes***

* To add or subtract: Must have a common denominator
* To multiply: Factor numerator, factor denominator, reduce/cancel common factors
* To divide: Flip the fraction ***after*** the division sign and use multiplication rules
* To simplify: factor numerator, factor denominator, reduce/cancel common factors
* Complex Fractions: Simplify numerator, simplify denominator, then divide

***PRACTICE AII.1a***

|  |  |
| --- | --- |
| 1. **Which is equivalent to** **?**

**A** **B** **C** **D** 1. **Which is equivalent to**

**A** **B** **C** **D** 1. **Which is equivalent to** **?**

**A** **B** **C** **D**  | 1. **Which equivalent to  ?**

**A** **B** **C** **D** 1. **Which is equivalent to ?**

**A** **B** **C** **D** 1. **Which is equivalent to ?**

**A** **B** **C**  **D**  |

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**SOL AII.1 The student, given rational, radical, or polynomial expressions, will**

 **b) add, subtract, multiply, divide, and simplify radical expressions containing rational numbers and**

 **variables, and expressions containing rational exponents;**

 **c) write radical expressions as expressions containing rational exponents and vice versa**

***HINTS AND NOTES***  , where ***a*** is the power and ***b*** is the index/root.

* To add or subtract radicals: Radicands and indices/roots must be the same. You may only add like radicals.
* Always simplify the radical completely.
* Pay attention to the index. Not every radical is a square root.

***PRACTICE AII.1bc***

|  |  |
| --- | --- |
| 1. **Which expression is equivalent to** **?**

**A** **B** **C** **D** 1. **Which is equivalent to** **?**

**A** 2**B** 2*x***C** **D** 1. **Which is equivalent to** **?**

**A** 4 **B** 8**C** 12  **D** 321. **Which is equivalent to  ?**

**A**    **B**   **C**   **D**  | 1. **Which is equivalent to ?**

**A** **B** **C** **D** 1. **What is the simplest form of**  **?**

**A** **B** **C** **D** 1. **What is the value of**  **?**

**A** **B** **C** **D** 1. **Which is equivalent to the expression**

**A**  **B**  **C**  **D**  |

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**SOL AII.1 The student, given rational, radical, or polynomial expressions, will**

 **d) factor polynomials completely**

***HINTS AND NOTES***

* Always look for a greatest common factor first: *xy + xw = x(y + w)*
* Look for patterns:

|  |  |
| --- | --- |
| a2 – b2 = (a + b)(a – b)a2 + 2ab + b2 = (a + b)2 | a3 + b3 = (a + b)(a2 – ab + b2)a3 – b3 = (a - b)(a2 + ab + b2) |

*To work backward to find factors: Multiply answer choices.*

***PRACTICE AII.1d***

|  |  |
| --- | --- |
| 1. **Which is a factored form of  ?**

 **A**   **B**   **C**  **D**  1. **Which is a factor of**  **?**

**A** **B**  **C**  **D** 1. **Which is a factor of** **?**

**A** **B** **C** **D** 1. **Which is a factor of** **?**

 **A**  **B**  **C**  **D**  | 1. **Which is the factored form of** **?**

**A** **B** **C** **D** 1. **Which is the factored form of** **?**

**A** **B** **C** **D** 1. **Which represents the complete factorization of**

**A** **B** **C** **D** 1. **Given that the expression for the area of a rectangle is , which of the following could represent the length of one side of the rectangle?**

**A** **B** **C**  **D**  |

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**SOL AII.3 The student will perform operations on complex numbers, express the results in simplest form using patterns of the powers of *i*, and identify field properties that are valid for the complex numbers.**

***HINTS and NOTES:* Graphics Calculator TIPS**

* Use the ** button on the calculator.
* Remember to include your parentheses. If , then 

|  |  |
| --- | --- |
| **Remember**   | The sequence repeats itself:    |

***PRACTICE AII.3***

|  |  |
| --- | --- |
| 1. **Which expression is equivalent to**

**A** **B**  **C**  **D** 1. **Which is equivalent to**

**A** **B** **C** **D** 1. **Which is equivalent to** **?**

**A** **B** **C** **D** 1. **Which is equivalent to ?**

**A** **B** **C** **D**  | 1. **Which is equivalent to ?**

**A**  **B** **C** **D** 1. **Which is equivalent to**

 **A**  **B**  **C**  **D** 1. **What number does  equal?**

**A** *i***B** -1**C** *-i***D** 1 |

**TEI (Technology Enhanced Item): Free-Response** - For free-response questions, type your answer in the box. Be sure your answer is in appropriate form - simplest fraction, decimal, etc.

1. **Simplify the following expression,** **. Type your answer in the box.**