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

My CEUA 1 is on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**CEUA 1 STUDY GUIDE** Mrs. Zuzu

**Directions**: Below is a guide to study from for your CEUA 1. Make sure you have your answers to the problems check.

**\*\* If you have any questions about the problems below. PLEASE stay with Mrs. Zunich 10th period to prepare for this exam!**

1. Simplify the expressions below.

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| Steps when using the product rule. |
| 1. \_Keep\_\_ the base.
2. Add\_\_\_ the exponents/powers.
3. \_Multiply\_\_\_ the coefficients.
 |

1. $(x^{12}y)(x^{-3}y^{27})$ b) $(3a^{6}b^{15})(2a^{7}b^{-4})$
2. Write an equivalent expression for the expressions below.

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| Steps when using the quotient rule. |
| 1. \_Keep\_\_ the base.
2. Subtract\_\_\_ the exponents/powers.
3. \_Divide\_\_\_ the coefficients.
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$a) \frac{\left(-4\right)^{17}}{\left(-4\right)^{37}}$ $b) \frac{-210x^{45}}{10x^{19}}$

 $c)\frac{-64y^{32}}{8y^{15}}$ $d) \frac{-81a^{13}b^{17}}{9ab^{3}}$

1. Using your knowledge of exponents, simplify the following expressions.

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| Steps for power to a power | Steps when using the product rule. |
| 1. Expand.
2. Follow the product\_ rules.
 | 1. \_Keep\_\_ the base.
2. \_Add\_\_ the exponents/powers.
3. Multiply \_\_ the coefficients.
 |

$a) \left(x^{12}y\right)^{2}$ $b) \left(3a^{6}b^{15}\right)^{2}$

 $c) \left(3a^{6}b^{15}\right)^{2}\left(2a^{2}b\right)$ $d) \left(x^{2}y^{3}z\right)^{2}(x^{5}y z^{16})$

1. Write with using only positive exponents.

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| **Rule for Negative Exponents.** |
| Flip the fraction, to put the negative exponent in the denominator. |

$a) x^{-4}=\frac{ }{ }$

$b) y^{-3}x^{5}=\frac{ }{ }$

1. Anything that has an exponenet with \_0\_ equals \_1\_\_.
2. Write an equivalent expression.
3. $\left(x^{15}\right)\left(x^{-15}\right)= \\_\\_\\_\\_\\_\\_\\_\\_\\_$ ii. $y^{0}=\\_\\_\\_\\_\\_\\_\\_\\_$.