**Exponents**: Exponents are shorthand for repeated multiplication of the same thing by itself. For example,

**Example 1:** Simplify (*x*3)(*x*4)   Copyright © Elizabeth Stap999-2009 All Rights Reserved

To simplify this, think in terms of what the exponents mean.

Therefore, (*x***3**)(*x***4**) = (*xxx*)(*xxxx*)   
          = *xxxxxxx*   
           = ***x*7**

Note that *x*7 also equals *x*(**3+4**).

This demonstrates the first basic exponent rule.

**RULE 1: Whenever you multiply two terms with the same base, you add the exponents:**

**🡺**Note: We can NOT simplify (*x*4)(*y*3), because the bases are different: (*x*4)(*y*3) = *xxxxyyy* = (*x*4)(*y*3). Nothing combines.

**Simplify the expressions below. If they cannot be simplified, write ‘Not Possible’.**

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**Example 2:** Simplify Copyright

To simplify this, think in terms of what the exponents mean.

Therefore,

Note that ***x*3** also equals ***x*(5**−**2**). This demonstrates the second basic exponent rule.

**RULE 2: Whenever you divide two terms with the same base, you can subtract the exponents:**

**RULE 3: Anything to the power zero is just "1":**

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