3-14)  Describe everything you know about $\frac{x^{m}}{x^{m}}$. Be prepared to explain your findings to the class.

* What is its value?
* How can you rewrite it using a single exponent?
* What new conclusions can you draw?

3-15) Explore the meaning of  $x^{-1}$, $x^{-2}$, etc. Simplify each of the expressions below ***twice***: Once by expanding the terms and simplifying, and then again by using your new pattern for division with exponents.

|  |  |  |
| --- | --- | --- |
| 1. $\frac{x^{4}}{x^{5}}$
 | 1. $\frac{x^{2}}{x^{4}}$
 | 1. $\frac{x^{7}}{x^{10}}$
 |
|  |  |  |

Write your findings.

3-16)  Use your exponent patterns to rewrite each of the expressions below.  Simplify until there are not negative exponents in the expression.

|  |  |  |  |
| --- | --- | --- | --- |
| 1. $k^{-5}$
 | 1. $m^{0}$
 | 1. $x^{-2}∙x^{5}$
 | 1. $\frac{1}{p^{-2}}$
 |
| 1. $\frac{y^{-2}}{y^{-3}}$
 | 1. $\left(x^{-2}\right)^{3}$
 | 1. $\left(a^{2}b\right)^{-1}$
 | 1. $\frac{1}{x^{-1}}$
 |

**Learning Log:** Describe the meaning of zero and negative exponents. Explain how to interpret $x^{0} $and $x^{-1}$.