**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U11 HW #3** *Zero and Negative Exponents*

1. For parts a. through l. write each expression in positive form. Then write the expanded form then finally the simplified expression in exponential form.

|  |  |
| --- | --- |
| 1. $\frac{x^{-3}}{x}$
 | 1. $\left(x^{4}\right)^{0}$
 |
| 1. $3^{-4}$
 | 1. $-\left(2^{2}\right)^{0}$
 |
| 1. $2x^{-3}y^{0}$
 | 1. $\left(2x\right)^{-4}$
 |
| 1. $4r^{0}$
 | 1. $\left(4xy\right)^{-1}$
 |
| 1. $\frac{r^{3}}{2r^{3}}$
 | 1. $\frac{3m^{-4}}{m^{3}}$
 |
| 1. $\frac{m^{4}}{2m^{4}}$
 | 1. $\frac{x^{-1}}{4x^{4}}$
 |

1. **Directions:** Determine the exponent that should go in the box to make the equations true.

|  |  |  |
| --- | --- | --- |
| 2 = $\frac{1}{8}$ | 1.

4- 4 = 3 | 1.

$\frac{1}{3^{}}$ = 27 |

1. Your younger sister is learning about exponents next week. Create a list of steps that would help her to simplify powers that include negative exponents and a list for powers that include the exponent of zero. Use bullet points to show each step. Give at least one example.

Rules for simplifying negative exponents Rules for simplifying zero exponents