Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table# \_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_

**10.4A NOTES – Zero and Negative Exponents**

*Objective: Know and apply the properties of integer exponents to generate equivalent expressions (CCSS: 8.EE.1)*

*HW: (10.4A) p. 432 #5 – 12, 37 – 39 (odd answers on p. A40)*

**Complete the table below.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| QUOTIENT | REPEATED MULTIPLICATION FORM | VALUE AFTER SIMPLIFIED |  | QUOTIENT | QUOTIENT OF POWERS RULE | POWER |
| $$\frac{5^{3}}{5^{3}}$$ |  |  |  | $$\frac{5^{3}}{5^{3}}$$ |  |  |
| $$\frac{6^{2}}{6^{2}}$$ |  |  |  | $$\frac{6^{2}}{6^{2}}$$ |  |  |
| $$\frac{(-3)^{4}}{(-3)^{4}}$$ |  |  |  | $$\frac{(-3)^{4}}{(-3)^{4}}$$ |  |  |
| $$\frac{(-4)^{2}}{(-4)^{2}}$$ |  |  |  | $$\frac{(-4)^{2}}{(-4)^{2}}$$ |  |  |

**RULE:** Except zero, everything to the zero power equals \_\_\_\_\_\_\_\_\_\_\_\_

a0 = \_\_\_\_ 30 = \_\_\_\_\_

**PRACTICE:**

|  |  |
| --- | --- |
| 1. Simplify 30 ∙ 34
 | 1. Simplify 82 ∙ 80
 |
| 1. Simplify (-2)3 ∙ (-2)0
 | 1. Simplify $\left(-\frac{1}{3}\right)^{0}∙\left(-\frac{1}{3}\right)^{5}$
 |

 **BACK 🡪**

**Complete the table below.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| QUOTIENT | QUOTIENT OF POWERS RULE | POWER |  | QUOTIENT | REPEATED MULTIPLICATION FORM | VALUE AFTER SIMPLIFIED |
| $$\frac{5^{3}}{5^{6}}$$ |  |  |  | $$\frac{5^{3}}{5^{6}}$$ |  |  |
| $$\frac{6^{2}}{6^{5}}$$ |  |  |  | $$\frac{6^{2}}{6^{5}}$$ |  |  |
| $$\frac{(-3)^{1}}{(-3)^{4}}$$ |  |  |  | $$\frac{(-3)^{1}}{(-3)^{4}}$$ |  |  |
| $$\frac{(-4)^{2}}{(-4)^{4}}$$ |  |  |  | $$\frac{(-4)^{2}}{(-4)^{4}}$$ |  |  |

**RULE**: To make a negative exponent positive, take the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(move numerator to denominator or denominator to numerator)

a-n = \_\_\_\_ 3-2 = \_\_\_\_\_ $\frac{1}{x^{-4}}= \\_\\_\\_\\_\\_$

**PRACTICE:**

|  |  |
| --- | --- |
| 1. Evaluate 3-4
 | 1. Evaluate (-5)-3
 |
| 1. Evaluate$ \frac{2^{6}}{2^{8}}$
 | 1. Evaluate $\frac{1}{3^{6}} ∙ \frac{1}{3^{-4}}$
 |

**WARM-UP**

|  |  |
| --- | --- |
| 1. $(\frac{3}{4}xy^{2})^{3}$
 | 1. $(\frac{1}{2}xy^{3})^{2}$
 |