Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_ Number: \_\_\_\_\_\_\_\_\_

# 2.1b Notes – Zero, Product, and Quotient Rule

What does $-9^{4}$ mean? Write it out:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is the answer to this going to be positive or negative? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What is** $3^{0}=$ **?**

What do you think? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the CORRECT answer???­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| Exponent | What it means | Answer |
| $$3^{4}$$ |  |  |
| $$3^{3}$$ |  |  |
| $$3^{2}$$ |  |  |
| $$3^{1}$$ |  |  |
| $$3^{0}$$ |  |  |

**THE ZERO EXPONENT RULE:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **Expression** | **What it means** | **Answer** |
| $$5^{2}∙5^{3}$$ |  |  |
| $$6^{4}∙6^{1}$$ |  |  |
| $$8^{1}∙8^{1}$$ |  |  |
| $$3^{7}∙3^{3}∙3^{2}$$ |  |  |
| $$7^{-2}∙7^{6}$$ |  |  |
| $$1^{1}∙1^{1}$$ |  |  |
| $$4^{5}∙4^{3}∙4^{1}∙4^{-3}$$ |  |  |

 **THE PRODUCT RULE:**

|  |  |  |
| --- | --- | --- |
| **Expression** | **What it means** | **Answer** |
| $$\frac{4^{6}}{4^{3}}$$ |  |  |
| $$\frac{x^{8}}{x^{5}}$$ |  |  |
| $$\frac{8^{5}∙x}{8^{3}∙x}$$ |  |  |
| $$\frac{6^{6}}{6^{1}}$$ |  |  |
| $$\frac{9^{3}}{9^{3}}$$ |  |  |
| $$\frac{2^{5}}{2^{0}}$$ |  |  |
| $$\frac{a^{2}b^{7}}{ab^{3}}$$ |  |  |

**THE QUOTIENT RULE:**