Standard 8.EE.1 **7.1 Zero and Negative Exponents** Unit 5

|  |  |  |
| --- | --- | --- |
| **Properties: Zero and Negative Exponents** | | |
| **Zero as an Exponent** | For every nonzero number a, | Examples: |
| **Negative Exponent** | For every nonzero number *a* and integer *n*, | Examples: |

**Zero Base and Zero Exponents**

Why can’t you use 0 as a base and an exponent? Solve each of the following.

However, consider the following pattern.

It is not possible for to equal both 1 and 0. Therefore, is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Simplifying Powers**

What is the simplified form of each expression?

Got it? What is the simplified form of each expression?

**Simplifying Exponential Expressions**

What is the simplified form of each expression?

Got it? What is the simplified form of each expression?

**Evaluating an Exponential Expression**

What is the value of for s = 2 and t = -3?

Got it? What is the simplified form of each expression if n = - 2 and w = 5?

1. n-4w0
2. 
3. 



Standard 8.EE.1 **7.5 Division Properties of Exponents**  Unit 5

|  |  |  |
| --- | --- | --- |
| **Dividing Powers with the Same Base** | | |
| To divide powers with the same base, subtract the exponents. |  | Examples: |

**Why it Works:** Use repeated multiplication to rewrite the product of powers: 38 ÷ 36 =?

1. Expand each into the product numbers to the right.



**Dividing Algebraic Expressions**

What is each expression written using each base only once?

1. 
2. 
3. 
4. 

|  |  |  |
| --- | --- | --- |
| **Raising a Quotient to a Power** | | |
| To raise a quotient to a power, raise the numerator and the denominator to the power and simplify. |  | Examples: |



**Why it Works:** Use repeated multiplication to rewrite the product of powers:

1. Expand each into the product numbers to the right.



**Raising a Quotient to a Power**

1. What is the simplified form of 
2. What is the simplified form of 

|  |  |  |
| --- | --- | --- |
| **Raising a Quotient to a Negative Power** | | |
| To raise a quotient to a negative power, raise the numerator and the denominator to the power and simplify. |  | Examples: |

**Simplifying an Exponential Expression**

1. What is the simplified form of
2. What is the simplified form of