## Lesson 1: Properties of Exponents

* Let’s use integer exponents.

### 1.1: Which One Doesn’t Belong: Exponents and Equations

A.

B.

C.

D.

### 1.2: Name That Power

Find the value of each variable that makes the equation true. Be prepared to explain your reasoning.

### 1.3: The Power of Zero

1. Use exponent rules to write each expression as a single power of 2. Find the value of the expression. Record these in the table. The first row is done for you.

| * expression | * power of 2 | * value |
| --- | --- | --- |
|  |  | * 16 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1. What is the value of ?
2. What is the value of ?
3. What is the value of ?

#### Are you ready for more?

Explain why the argument used to assign a value to the expression does not apply to make sense of the expression .

### 1.4: Matching Exponent Expressions

Sort expressions that are equal into groups. Some expressions may not have a match, and some may have more than one match. Be prepared to explain your reasoning.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

### Lesson 1 Summary

Exponent rules help us keep track of a base’s repeated factors. Negative exponents help us keep track of repeated factors that are the *reciprocal* of the base. We can define a number to the power of 0 to have a value of 1. These rules can be written symbolically as:

Here, the base can be any positive number, and the exponents and can be any integer.



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