| Summary of the Properties of Exponents | | |
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| WORDS | SYMBOLS | NUMBERS |
| **Zero Exponent Property**<br><br>A base raised to the power of zero is 1. | $$b^0 = 1$$ | |
| **Negative Exponent Property**<br><br>A negative exponent of a number is equal to the reciprocal of the positive exponent of the number. | $$b^{-n} \Leftrightarrow \frac{1}{b^n}$$ $$b^n \Leftrightarrow \frac{1}{b^{-n}}$$ | |
| **Product of Powers Property**<br><br>To multiply powers with the same base, add the exponents. | $$b^n \bullet b^m = b^{n+m}$$ | |
| **Quotient of Powers Property**<br><br>To divide powers with the same base, subtract the exponents. | $$\frac{b^m}{b^n} = b^{m-n}$$ | |
| **Power of a Power Property**<br><br>To raise one power to another power, multiply the exponents. | $$\left(b^m\right)^n = b^{m \bullet n}$$ | |

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| **Power of a Product Property**<br><br>To find the power of a product, distribute the exponent. | $$(ab)^n = a^n \cdot b^n$$ | |
| **Power of a Quotient Property**<br><br>To find the power of a quotient, distribute the exponent. | $$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$ | |