

Zero Exponent

Negative Exponent

**Product of Powers
Property**

**Quotient of Powers
Property**

**Power of a Power
Property**

**Power of a
Product Property**

**Power of a
Quotient Property**

$$a^0 = 1$$
$$-a^0 = -1$$

The power of zero is always 1 or -1. 0^0 is undefined.

$$a^{-n} = \frac{1}{a^n}$$

Find the positive reciprocal of the negative exponent.

$$a^m \cdot a^n = a^{m+n}$$

To multiply powers with the same base, add the exponents.

$$\frac{a^m}{a^n} = a^{m-n}$$

To divide powers with the same base, subtract the exponents.

$$(a^m)^n = a^{mn}$$

To find a power of a power, multiply the exponents.

$$(ab)^m = a^m b^m$$

To find a power of a product, find the power of each factor and multiply.

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

To find the power of a quotient, find the power of the numerator and the power of the denominator and divide.