

Algebra 1: Exponent Rules

Any quantity raised to the “zero” power is _____.

Use the zero exponent rule to simplify:

a. 7^0

b. π^0

c. $(-5)^0$

d. -5^0

The Product Rule:

The Quotient Rule:

The Power Rule:

Combining more than one rule....

Product to a Power:

Quotient to a Power:

Practice with Exponents

1. $(5a^2b^3c^4)(6a^3b^4c^2)$

2. $8a^0$

3. $(2b^2)^3$

4. $(-2x^4)^3$

5. $(-4a^2b^5c)^2$

6. $\frac{x^6y^4z}{x^2y^9z^7}$

7. $\left(\frac{2a^3b^5}{3}\right)^2$

8. $\left(\frac{x^5y^2}{x^3y^7}\right)^3$

The Negative Exponent Rule

If x is any real number other than 0 and a is a natural number,

Negative exponents are “unhappy.” So move them up or down and they become happy (“positive”). ☺

Using the Negative Exponent Rule

1. 8^{-2}

2. $4x^{-3}$

3. $\frac{2x^4}{5x^{-3}y}$

4. $\frac{2x^{-2}}{4y^{-3}}$

5. $\left(\frac{x^2y^{-4}}{x^3y}\right)^{-2}$

6. $(ab^{-2}c^4)^{-3}$