

Properties of Exponents

① The Product Rule: $b^m \cdot b^n = b^{m+n}$

② The Quotient Rule: $\frac{b^m}{b^n} = b^{m-n}$

③ The Power Rule: $(b^m)^n = b^{mn}$

④ The Zero Exp. Rule: $b^0 = 1$

⑤ The Unit Exp. Rule: $b^1 = b$

⑥ The Negative Exp. Rule: $b^{-n} = \frac{1}{b^n}$

⑦ Product to Powers: $(ab)^n = a^n \cdot b^n$

⑧ Quotient to Powers: $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$

CAUTION!

In general,

$$(a+b)^n \neq a^n + b^n$$

$$(a-b)^n \neq a^n - b^n$$