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,

\[
(a+b)^n \neq a^n + b^n \\
(a-b)^n \neq a^n - b^n
\]