[12-11-06-T7]

Exponents

■ DEFINITION. a^n when n is a positive integer

When n is a positive integer and a is any number, a^n means n factors of a.

[1] Using the definition of a^n, $n \in \mathbb{Z}^+$, see if you can discover a rule by which to compute $a^n \cdot a^m$.

[2] The expression a^0 is not defined. How would you define it?

[3] The expression a^n is not defined when n is an integer. How would you define it?

[4] Using the definition of a^n, $n \in \mathbb{Z}$, see if you can discover a rule by which to compute $a^m \div a^n$.

[5] See if you can discover a rule by which to compute $(a\,b)^n$.

■ Computations

Using the rules and definitions from [1] - [5], compute the following.

[1] $2^3 \cdot 2^9$

[2] $3^2 \cdot 3^3$

[3] $(2\,a)^3$

[4] $17^2 \cdot 33^0$

[5] $7^5 \cdot 7^{-2}$

[6] $3^9 \cdot 3^{-9}$

[7] $3^{12} \div 3^9$

[8] $2^4 \div 2^{-2}$

[9] $\frac{3^2 \cdot 3^5}{3^6}$

[10] $\frac{3^2 \cdot 3^5}{3^8}$