Proposition 1. Let n, m, k be natural numbers such that k is nonzero and $n \geq m$. Then

$$\frac{k^n}{k^m} = k^{n-m}.$$

Proof. We have $k^n = k^{(n-m)+m} = k^{n-m} \cdot k^m$. Hence

$$\frac{k^n}{k^m} = \frac{k^{n-m} \cdot k^m}{k^m} = \frac{k^{n-m} \cdot k^m}{1 \cdot k^m} = \frac{k^{n-m}}{1} = k^{n-m}.$$

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