

Raising a Power to a Power

Power Rule: $(A^m)^n = A^{mn}$

When you raise a power to a power, you multiply the exponents

Example: Simplify $(9^4)^4$ in exponential notation.

$$\begin{aligned}(9^4)^4 &= 9^{4 \times 4}, \\ &= 9^{16}.\end{aligned}$$

Simplify the following expressions in exponential notation.

1. $(6^7)^2$

2. $(12^0)^4$

3. $(48^3)^5$

4. $(2^6)^6$

5. $(8^2)^3$

6. $(3^{10})^8$

7. $(25^2)^{13}$

8. $(11^5)^9$

9. $(8^4)^3$

10. $(14^{15})^3$

11. $(7^7)^4$

12. $(10^8)^0$

13. $\frac{(5^4)^2 \cdot 3^7 \cdot 5^7 \cdot 3^4}{5^8 \cdot (3^2)^5}$