$(\text{EXPONENT})^{\text{RULES}}$

Multiplying Powers	Dividing Powers
To multiply powers with the same base, keep the base the same and **add** the exponents. $$a^m \times a^n = a^{m+n}$$ 1. Evaluate. a) $3^4 \times 3^5$ b) $7^{-2} \times 7^4$ c) $2^3 \times 2^{-1}$	To divide powers with the same base, keep the base the same and **subtract** the exponents. $$a^m \div a^n = a^{m-n}$$ 2. Evaluate. a) $4^6 \div 4^5$ b) $6^{-3} \div 6^{-5}$ c) $3^3 \div 3^{-1}$
Power of a Power	**Zero Exponents**
To simplify a power of a power, keep the base the same and **multiply** the exponents $$(a^m)^n = a^{m \times n}$$ 3. Evaluate. a) $(3^4)^3$ b) $(5^2)^2$ c) $(2^5)^4$	Any base raised to an exponent of zero equals **1**. $$a^0 = 1$$ 4. Evaluate. a) 6^0 b) $2^2 \times 2^{-2}$ c) $4^{-3} \div 4^{-3}$
Negative Exponents	**Simplifying Expressions**
Any base raised to a negative exponent is equal to the **reciprocal** of the base raised to a positive exponent. $$a^{-m} = \frac{1}{a^m} \qquad \frac{1}{a^{-m}} = a^m$$ 5. Evaluate. a) 8^{-3} b) $2^3 \div 2^5$ c) 3^{-4}	Simplify. a) $4^3 \times 4^4 \times 4^{-2}$ b) $(2^3 \times 2^2) \div 2^7$ c) $(5^2 \times 5^4)^6$ d) $(2^6 \div 2^8)^3$ e) $(3^7 \div 3^3) \div 3^4$ f) -538^0