2.3 Exponent Laws

Expand the following then simplify (where necessary) and write in index form:

1) (5x5x5x5)x(5x5) =_____

2) $4^2 x 4^3$=_____

3) $\frac{7x7x7x7x7}{7x7}$ = _____

4) $\frac{3^3}{3^2}$ =_____

Product rule:

If a is a real number, and m and n are integers, then:

$a^m x a^n = a^{m+n}$ Where a $\neq 0$

Can you use the product rule for the following? Why or why not?

1) $5^2 x 6^2$

_____

_____

Quotient Rule:

If a is a real number, and m and n are integers, then:

$\frac{a^m}{a^n} = a^{m-n}$ Where a $\neq 0$

Can you use the quotient rule for the following? Why or why not?

2) $\frac{5^2}{2^2}$

_____

_____

Example 1: Simplify

1) $\frac{5^8}{5^3}$

2) $2^4 x 2^3 x 2^6$

3) $\frac{4^3 x 4^2}{4}$

4) $\frac{4^3 x 4^2}{4^7}$