

Power of a Power

- to find power of a power
multiply the exponents $(a^m)^n = a^{m \cdot n}$

① $(3^4)^6 = 3^{4 \cdot 6} = 3^{24}$ think... $3^4 \cdot 3^4 \cdot 3^4 \cdot 3^4 \cdot 3^4 \cdot 3^4$

② $(2^3)^2 = 2^{3 \cdot 2} = 2^6$

③ $[(3^2)^3]^2$

$$(3^2 \cdot 3)^2$$

$$(3^6)^2$$

$$3^{12}$$

④ $[(2^3)^3]^2$

$$(2^{3 \cdot 3})^2$$

$$2^{9 \cdot 2}$$

$$2^{18}$$

Power of a Product

- to find the power of a product,
find the power of each factor
and multiply $(ab)^m = a^m b^m$ (distribute)

① $(-2 \times y^3)^3$
 $-2^3 \times y^3 \times y^3$
 $-8 \times y^3 \times y^3$

② $(5 \times y^2)^3$
 $5^3 \times y^2 \times y^2 \times y^2$
 $125 \times y^2 \times y^2 \times y^2$