More info on how the properties work

① $x^4 \cdot x^2$

$x \cdot x \cdot x \cdot x \cdot x \cdot x$

x^6

same bases
ADD exponents

x^{4+2}

x^6

② $(x^3)^3$

$x^3 \cdot x^3 \cdot x^3$

$x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

multiply the exponents of like bases

$x^{3 \cdot 3}$

x^9

③ $\frac{x^4}{x^9}$

$\frac{x \cdot x \cdot x \cdot x}{x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x}$

$\frac{1}{x \cdot x \cdot x \cdot x \cdot x}$

$\frac{1}{x^5}$

$\frac{x^4}{x^9}$

x^{4-9}

x^{-5}

$\frac{1}{x^5}$

subtract the exponents of like bases when they are being divided