

$$x^{-A} = 1/x^A$$

$$x^{1/A} = A_{\text{th}} \text{ root of } x$$

$$(x^A)^B = x^{AB}$$

$$x^A x^B = x^{A+B}$$

Examples:

$$4^{-2} = 1/4^2 = 1/16$$

$$8^{1/3} = 2$$

$$(2^2)^3 = 4^3 = 64 = 2^6$$

$$9^{3/2} = (9^{1/2})^3 = 3^3 = 27$$

$$2^2 2^3 = 4 \cdot 8 = 32 = 2^5$$

$$3^4 3^{-5} = 3^{4-5} = 3^{-1} = 1/3$$

$$(xy)^A = x^A y^A$$

$$\sqrt{(x^A y)} = x^{A/2} \sqrt{(y)}$$

Examples:

$$(2x)^3 = 8x^3$$

$$\sqrt{(24)} = \sqrt{(4 \cdot 6)} = 2\sqrt{(6)}$$

$$\begin{aligned} \sqrt{(4x^3)} &= \sqrt{( (2x)^2 x )} \\ &= 2x\sqrt{(x)} \end{aligned}$$