

Exponents Notes Handout

Law

$$x^1 = x$$

$$x^0 = 1$$

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

$$x^m x^n = x^{m+n}$$

$$x^m / x^n = x^{m-n}$$

$$(x^m)^n = x^{mn}$$

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

$$(x/y)^n = x^n / y^n$$

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

Example

$$6^1 = 6$$

$$7^0 = 1$$

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

$$x^2 x^3 = x^{2+3} = x^5$$

$$x^6 / x^2 = x^{6-2} = x^4$$

$$(x^2)^3 = x^{2 \times 3} = x^6$$

$$(xy)^3 = x^3 y^3$$

$$(x/y)^2 = x^2 / y^2$$

$$x^{-3} = 1/x^3$$

And the law about Fractional Exponents:

$$\begin{aligned} x^{\frac{m}{n}} &= \sqrt[n]{x^m} \\ &= (\sqrt[n]{x})^m \end{aligned}$$

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