



Exponents

$$\begin{array}{rcll} 2^3 & = & 2 \times 2 \times 2 & = 8 \\ 2^2 & = & 2 \times 2 & = 4 \\ 2^1 & = & 2 & = 2 \\ 2^0 & = & 1 & = 1 \\ 2^{-1} & = & & = \frac{1}{2} \\ 2^{-2} & = & & = \frac{1}{4} \\ 2^{-3} & = & & = \frac{1}{8} \end{array} \left. \begin{array}{l} \div 2 \\ \div 2 \\ \div 2 \\ \div 2 \\ \div 2 \\ \div 2 \end{array} \right\}$$

↓

fractions	with	denominators
2	4	8
↓	↓	↓
2^1	2^2	2^3

Apparently $2^{-1} = \frac{1}{2^1}$

$$2^{-2} = \frac{1}{2^2}$$

$$2^{-3} = \frac{1}{2^3}$$

General rule:

$$\text{something}^{-P} = \frac{1}{\text{something}^P}$$

So:

$$4^{-3} = \frac{1}{4^3}$$
$$(-6)^{-2} = \frac{1}{(-6)^2}$$
$$x^{-20} = \frac{1}{x^{20}}$$