

T7-3 ALL PROPERTIES

~ zero & Negative exponents

$$2^4 = 16 \quad \div 2$$

$$2^3 = 8 \quad \div 2$$

$$2^2 = 4 \quad \div 2$$

$$2^1 = 2 \quad \div 2$$

$$2^0 = 1 \quad \div 2$$

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

$$2^{-2} = \frac{1}{4} = \frac{1}{2^2}$$

$$2^{-3} = \frac{1}{8} = \frac{1}{2^3}$$

ZERO
Exponent

$$a^0 = 1$$

Negative Exponents

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

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

$$\frac{a^m}{a^n} = a^{m-n}$$

$$\frac{x^{15}}{x^{21}} = x^{15-21} = x^{-6}$$

$$\frac{1 \cancel{x^{15}}}{x^{21-15}} = \frac{1}{x^6}$$

$$\frac{5m^{3-3}}{10m^3}$$

$$\frac{1m^0}{2} = \frac{1}{2}$$

$$\frac{x^{10}}{x^{10}} = x^{10-10} = x^0$$

$$\frac{x^{10}}{x^{10}} = 1$$

$$x^0 = 1$$

Anything to zero power is
being divided by itself!

$$(xyz)^0 = 1$$

$$17x^0 = 17 \cdot 1 = 17$$

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

$$5x^{-3} = \frac{5}{x^3}$$

$$\frac{c^{-4}}{d^{-3}} = \frac{d^3}{c^4}$$

$$\frac{2x^{-3}}{x^2} = \frac{2}{x^2 x^3} = \frac{2}{x^5}$$

$$(a^n)^m = a^{n \cdot m}$$

$$(3^{-1})^{-2} = 3^{(-1) \cdot (-2)} = 3^2 = 9$$

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

$$(3^{-1})^{-2} = \left(\frac{1}{3}\right)^{-2} = \left(\frac{3}{1}\right)^2 = 3^2 = 9$$

$$\left(\frac{2}{3}\right)^{-2} = \frac{2^{-2}}{3^{-2}} = \frac{3^2}{2^2} = \left(\frac{3}{2}\right)^2$$

$$\left(\frac{a}{b}\right)^{''} = \frac{a^{''}}{b^{''}}$$

w/ pos exp.
Neg Bases [^] dont move

$$\frac{-1x^{-2}}{2y^3} \quad \frac{-1}{2x^2y^3}$$

$$-(+^{-3}) = \frac{-1}{7^3}$$

Whiteboards

① $\frac{y}{4^{-2}x}$

② $\frac{-3}{x^{-4}}$

③ $\frac{x^{-4}y^9}{z^{-6}}$

④ $\frac{a^{-2}b^3}{c^{-5}}$

⑤ $\frac{75p^3q^{-5}}{15p^5q^{-4}r^{-8}}$

⑥ $(2x^4)^0$

⑦ $(2^{-3})^{-2}$

⑧ $\frac{x^{-3}y^5}{x^{-6}y^{-4}}$

⑨ $\left(\frac{1}{9}\right)^{-2}$