

0 & Negative Exponents

Law of Exponents:

Any nonzero number to the power of 0 is 1.

examples:

$$\begin{array}{l} 10^0 = 1 \\ 9^0 = 1 \\ 23^0 = 1 \end{array} \quad \begin{array}{l} 11^0 = 1 \\ a^0 = 1 \end{array}$$

$$10^{-1} = .1 = \frac{1}{10}$$

$$10^{-2} = .01 = \frac{1}{100}$$

$$10^{-3} = .001 = \frac{1}{1000}$$

Law of Exponents:

Any nonzero number to the negative power is 1 over that number to the positive power.

$$2^{-3} = \frac{1}{2^3} \quad 5^{-6} = \frac{1}{5^6} \quad a^{-4} = \frac{1}{a^4}$$

66

other direction

1.5
cont'd

$\frac{1}{5^2} = 5^{-2}$	$\frac{1}{9} = \cancel{9^{-1}}$
$\frac{1}{3^5} = 3^{-5}$	$3 \cdot 3 \quad \frac{1}{3^2} = 3^{-2}$

$\frac{1}{27} = \frac{1}{3 \cdot 3 \cdot 3} = 3^{-3}$

$\frac{1}{16} = \frac{1}{4 \cdot 4} = 4^{-2}$
