# Exponents - Review

ER1

Exponent - the # that indicates the # of times you multiply the base by itself

Base - the # multiplied by itself a certain # of times

Power - an expression written with an exponent and a base

ex: $3^2 = 3 \cdot 3 = 9$ (base → 3, exponent → 2)

** Parentheses make a difference!!

$(-2)^2 = 4 = (-2)(-2)$

$-2^2 = -(2 \cdot 2) = -4$

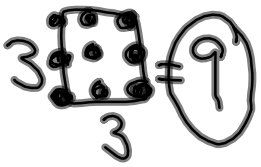
$\left(\frac{2}{3}\right)^2 = \frac{4}{9}$

$\frac{1}{3}2^2 = \frac{4}{3}$

Perfect Squares: 1,4,9,16,25,36,49,64,81,100,121,144,169,196,225 (256,289,324,361,400)

Perfect Cubes: 1,8,27,64,125,216 (343,512,729,1000)

$3^2 = 3 * 3$




$2^3 = 2 \cdot 2 \cdot 2$

# Radicals

square root - inverse operation of squaring a #
ex: 2 and -2 are square roots of 4

radical sign √ (symbol used to find a square root)
√ positive root
-√ negative root
±√ both pos & neg roots

$\sqrt{\frac{25}{49}} = \frac{5}{7}$

Examples:

$\sqrt{64} = 8$

$-\sqrt{64} = -8$

$\pm\sqrt{64} = 8, -8$

$(\sqrt{64})^2 = 64$

$\sqrt{64^2} = 64$

$\sqrt[3]{27} = 3$

$\sqrt[3]{-27} = -3$

$\sqrt{16} = 4$

$-\sqrt{16} = -4$

$\sqrt{-16} = 4i$ (imaginary #)

★ can only take an odd root of a negative #

odd roots → one answer (either pos or neg)

even roots → two answers (both pos + neg)

# Population growth:

starting population * (growth rate) ^ # of times it grows

doubling = 2
tripling = 3
etc.

Ex: have 10 bunnies
double every wk
4 weeks
how many bunnies?

$10 * 2^4$

$10 * 16 = 160$ bunnies