II. Zero as an Exponent 2^0

ANY REAL NUMBER TO THE ZERO POWER EQUALS TO 1.

[TRUE]

$2^0 = 1.$

proof: $2^3 \cdot 2^0 = 2^{3+0} = 2^3$

$8 \cdot \underline{1} = 8$

1 is the multiplicative identity, so $8 \cdot 1 = 8$.

So 2^0 has to be equal to 1.

$-3^0 = -1$ base is 3

$(-3)^0 = 1$ base is -3

WEBASSIGN PRACTICE.

$12y^3(4y^0)^3$

$= 12y^3(4 \cdot 1)^3$

$= 12y^3(4)^3$

$= 12 \cdot y^3 \cdot 64$

$= 768y^3$

QUIZ TIME

MATH 0270/1314 COLLEGE ALGEBRA week 2 ~~Tu~~ Thu. 1/31/19.

II. ~~3rd~~ 2nd property of Exponent.

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

"a power to a power"

~~a.~~ e.g. $(a^2b^3)^4 = a^{2\cdot 4}\cdot b^{3\cdot 4} = a^8a^{12}$

$(3ab^3)^2 = 3^2a^2b^{3\cdot 2} = 9a^2b^6$

$2^3\cdot 2^4 = 2^{3+4} = 2^7$

same base, ~~add~~ multiplying, add the exponents, keep the base

• ZERO AS AN EXPONENT.

e.g. $2^0 = 1$.

$2^3\cdot 2^0 = 2^{3+0} = 2^3 = 8$. and since $2^3 = 8$ and $2^3\cdot 2^0 = 8$, so $2^0 = 1$.

$7^0 = 1$, $13.5^0 = 1$, $\left(\frac{\pi}{4}\right)^0 = 1$, $(-37)^0 = 1$.

Any real number to the zero power equals 1.

$-3^0 = -1$ → base 3 ※ If you have a TI-8xx? the answer might be 1 instead, it's wrong.

$(-3)^0 = 1$. base -3.

$12y^3(4y^0)^3$

$= 12y^3(4\cdot 1)^3$

$= 12\cdot y^3\cdot 4^3$

$= 12y^3\cdot 64$

$= 768y^3$.