Powers and Exponents Exit Ticket

Grade: 9

Subject: Math

Date:

Unit 6 Zero and Negative Exponents

No decimals

Exponent, n	3	2	1	0	-1	-2	-3
Base, 2	$2^3 = 8$	$2^2 = 4$	$2^1 = 2$	$2^0 =$			
Base, 3	$3^3 =$						
Base, 4							

When you are done with the table....get into groups of 2-3 and write down at least 3 observations or predictions that you find based on the table you just completed.

ZERO EXPONENTS!!!

$(\text{ANYTHING NONZERO})^0 = 1$

Ex: $6^0 =$

Ex: $(-6)^0 =$

Ex: $-6^0 =$

Ex: $1,534,690,450^0 =$

Ex: $(-6.234)^0 =$

Ex: $14ab^2(34)^0 =$

NEGATIVE EXPONENTS!!!

$$a^{-n} = \frac{1}{a^n} \qquad \left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^{n} = \frac{b^n}{a^n}$$

Ex: 2^{-6}

Ex: $\dfrac{1}{b^{-3}}$

Ex: 4^{-y}

Ex: 0^{-1}

Ex: $\left(\dfrac{6}{x}\right)^{-2}$

More....negative exponents.....!!

Ex: $6g^{-3}h^{-7} =$

Ex: $4\,(3^{-k}) =$

Ex: $\dfrac{-3k^2}{j^{-2}}$

Ex: $\dfrac{4\,(3^{-k})}{3^{-k}}$

(Ask yourself...."what is being raised to the negative exponent?"....that is the ONLY part that you take the reciprical of!)

Let's add in more properties we already know!!!!

Ex: $(2x^3y^{-1})^2$

Ex: $(-3x^5y^3)^{-2}$

Ex: $12a^2b^{-3}(2a^{-1}b^{-4})^2$

NOTE TO SELF: Expressions are NOT, I repeat NOT, considered completely simplified if they have a negative exponent!!!

$6x^{-2}$

$\frac{6}{x^2}$

1 Simplify

$x^5 x^7$

- A x^2
- B x^35
- C x^12
- D x^-2
- E

2 When you raise a power to another power, you leave the base and multiply the exponents.

- ○ True
- ○ False

3 Anything, except zero, raised to the zero power is zero.

- ○ True
- ○ False

4 When you raise something to a negative exponent, it is the same as raising it to a positive exponent, only your answer is negative.

- Yes
- No