

Warm up-

Simplify the following

1. $2^3 =$

$$8$$

2. $4^2/2^2 =$

$$\frac{16}{4} = 4$$

3. $(-3)^3 =$

$$(-3)(-3)(-3) = -27$$

4. $-3^3 =$

$$-3 \cdot 3 \cdot 3$$
$$-27$$

5. $1/4^2 =$

$$\frac{1}{16}$$

6. $6^2/12 =$

$$\frac{36}{12} = 3$$

Exponent Properties-

Zero as an Exponent

For every nonzero number a , $a^0 = 1$

Ex: 1. $5^0 = 1$ 2. $-2^0 = 1$ 3. $(1.02)^0 = 1$

$$5^0 = 1$$

$$5^1 = 5$$

$$5^2 = 25$$

$$5^3 = 125$$

Exponent Properties-

Negative Exponent

For every nonzero number a and integer n , a^{-n}

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

Ex: 1. $6^{-4} = \frac{1}{6^4}$ 2. $(-8)^{-1} = \frac{1}{(-8)^1} = \frac{1}{-8}$

$$\frac{1}{1296}$$

Simplify

$$1. (-7)^0 = 1$$

$$2. -3^{-2} = \frac{1}{-3^2} = \frac{1}{-3 \cdot 3} = -\frac{1}{9}$$

$$3. 3^{-4} = \frac{1}{3^4} = \frac{1}{3 \cdot 3 \cdot 3 \cdot 3} = \frac{1}{81}$$

Simplify

$$1. 4xy^{-3} = \frac{4x}{y^3}$$

$$2. 7s^{-4}t^0 = 7s^{-4} = \frac{7}{s^4}$$

$$3. \frac{n^{-5}}{v^2} = \frac{1}{v^2n^5}$$

Homework

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