Exponents

REVIEW: $4 \cdot 3$ means 4 + 4 + 4 $4 \cdot 3 = 4 + 4 + 4$ 12 = 12

Multiplication is simply a concise way of writing addition.

Similarly, exponents are a concise way of writing multiplication.

For the expression 4^3 , 4 is called the **base** and the 3 is called the **exponent**.

base^{exponent}

 $4^3 = 4 \cdot 4 \cdot 4$

=____

Example 1:

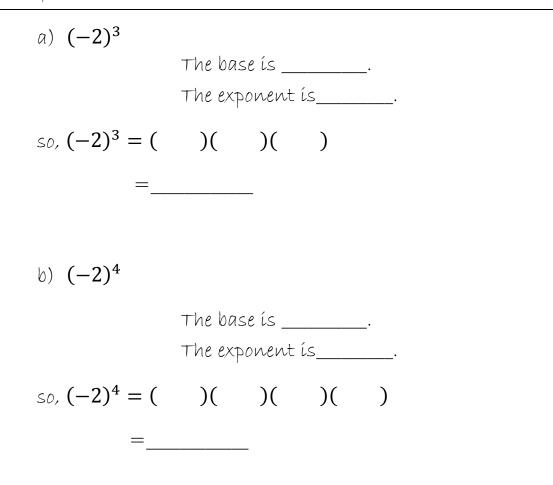
Evaluate: $\left(\frac{2}{3}\right)^2$

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

Example 2:

Evaluate: 3^4

=



c) -2^4

The base is 2. The exponent is 4.

NOTE: The exponent does not apply to the negative sign since there aren't parentheses like in part b).

 $s_{0,} -2^4 = -()()()()()$

Example 4:

Evaluate: $20 - 3^2$

<u>NOTE:</u> By the Order of Operations, we must first evaluate 3^2 .

=

 $20 - 3^2 = 20 -$ _____

Example 5:

a) What does 4x mean?

4x =

b) What does x^4 mean?

$$x^4 =$$

1. Evaluate:

(a) 2^5 (b) $\left(\frac{1}{4}\right)^3$

2. Evaluate:

- a) 3²
- b) (-3)²
- c) -3²
- d) (−3)³
- з. Evaluate: 16-2⁴
- 4. a) What does 4x mean?

b) what does x^3 mean?