# Integer Exponents

Example1:

$3^4 =$

Example2:

$(\frac{1}{2})^2 =$

Example 3:

$(-8)^3 =$

Positive Exponents

$$2^7$$

| Algebra | Example |
|---|---|
| $b^{-n} = \dfrac{1}{b^n}$ | $4^{-3} = \dfrac{1}{4^3} = \dfrac{1}{64}$ |
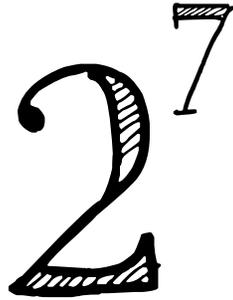
Example 1:

Simplify $3^{-2} \cdot 2^2 \cdot 4^0$

Example 1:

$2^{-3} =$

Example 2:

Simplify $6^2 - 3^2 + 1^{-1}$

Example 2:

$(-6)^{-4} =$

Expressions Involving Exponents

Negative Exponents

**Integer Exponents**

Use the order of operations!

# PEMDAS

Example1:

$3^4 =$ 3 • 3 • 3 • 3 = 81

Example2:

$(\frac{1}{2})^2 = \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

Example 3:

$(-8)^3 =$ (-8) (-8) (-8) = -512

Positive Exponents

$2^7$

Base

Exponent- tells you how many times to multiply the base by itself
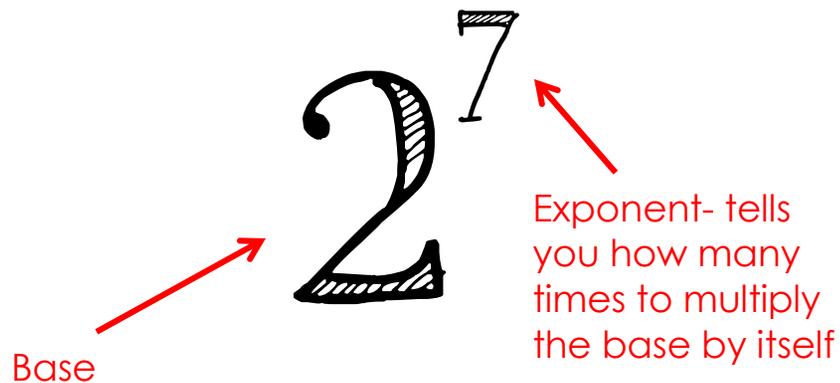
| Algebra | Example |
|---------|---------|
| $b^{-n} = \dfrac{1}{b^n}$ | $4^{-3} = \dfrac{1}{4^3} = \dfrac{1}{64}$ |

## Example 1:

Simplify $3^{-2} \cdot 2^2 \cdot 4^0$

$$\frac{1}{9} \cdot 4 \cdot 1 = \boxed{\frac{4}{9}}$$

## Example 2:

Simplify $6^2 - 3^2 + 1^{-1}$

$$36 - 9 + \frac{1}{1} = 36 - 9 + 1 = \boxed{28}$$

## Expressions Involving Exponents

## Example 1:

$$2^{-3} = \frac{1}{2^3} = \frac{1}{(2)(2)(2)} = \boxed{\frac{1}{8}}$$

## Example 2:

$$(-6)^{-4} = \frac{1}{(-6)^4} = \frac{1}{(-6)(-6)(-6)(-6)} = \boxed{\frac{1}{1296}}$$

## Negative Exponents

| | | |
|---|---|---|
| $2^4$ | | |
| $2^3$ | | |
| $2^2$ | | |
| $2^1$ | | |
| $2^0$ | | |
| $2^{-1}$ | | |
| $2^{-2}$ | | |
| $2^{-3}$ | | |
| $2^{-4}$ | | |

| | | |
|---|---|---|
| $2^4$ | | |
| $2^3$ | | |
| $2^2$ | | |
| $2^1$ | | |
| $2^0$ | | |
| $2^{-1}$ | | |
| $2^{-2}$ | | |
| $2^{-3}$ | | |
| $2^{-4}$ | | |

| | | |
|---|---|---|
| $2^4$ | | |
| $2^3$ | | |
| $2^2$ | | |
| $2^1$ | | |
| $2^0$ | | |
| $2^{-1}$ | | |
| $2^{-2}$ | | |
| $2^{-3}$ | | |
| $2^{-4}$ | | |

| | | |
|---|---|---|
| $2^4$ | | |
| $2^3$ | | |
| $2^2$ | | |
| $2^1$ | | |
| $2^0$ | | |
| $2^{-1}$ | | |
| $2^{-2}$ | | |
| $2^{-3}$ | | |
| $2^{-4}$ | | |

**Integer Exponents**

Positive Exponents

Negative Exponents

Expressions Involving Exponents

$2^7$

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Positive Exponents

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Expressions Involving Exponents