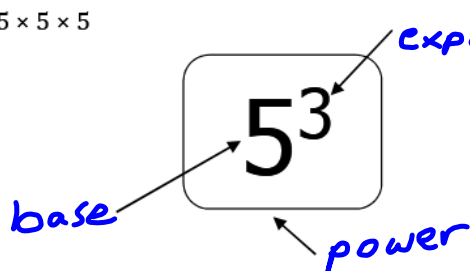


2.1 – What Is a Power?

A product of equal factors can be written as a power.

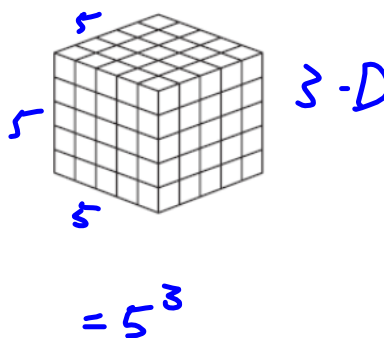
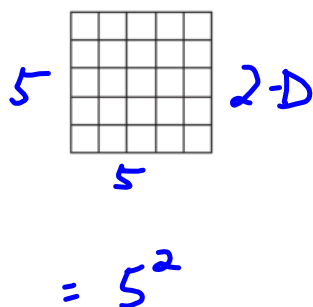
Ex: $5 \times 5 \times 5$



We say:
5 to the 3,
5 to the power of 3,
or
5 cubed.

NOTE: Squared and cubed numbers are numbers that can be written as a power with an integer base and exponent 2 or 3, respectively.

Ex.



Ex. 1: Write the following as powers.

(a) $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$

3^7

(b) 7

7^1

(c) $-(-9)(-9)(-9)(-9)(-9)$

$-(-9)^5 = \text{positive}$

Note: The **base** is the number that is multiplied over and over. The number of times it is multiplied over and over is the **exponent**.

Ex. 2: Write as repeated multiplication and in standard form.

(a) $4^3 = 4 \times 4 \times 4 = 64$

★ (b) $(-2)^5 = (-2)(-2)(-2)(-2)(-2) = -32$

★ (c) $-7^4 = -(7)(7)(7)(7) = -2401$

When you evaluate the power to get the number it represents this answer is said to be in **standard form**.

Ex. 3: Identify the base of the power and evaluate.

(a) $(-3)^4$ base = -3
 $= (-3)(-3)(-3)(-3) = +81$

(b) $-3^4 = -(3)(3)(3)(3) = -81$

(c) $-(-3)^4 = -(-3)(-3)(-3)(-3)$
 $= -(+81)$
 $= -81$

(d) $-(-3^4) = -(-81)$
 $= +81$

When we multiply:

• an even number of (-) #s
 $\rightarrow = (+)$

eg. $(-2)(-2) = +4$

• an odd number of (-) #s
 $\rightarrow = (-)$

eg. $(-2)(-2)(-2) = -8$

Ex. 4: Why do $(-2)^3$ and -2^3 give the same answer?

$(-2)(-2)(-2) = -8$ odd # of exponents

$\therefore (2)(2)(2) = -8$

Assignment: P. 55 #7-9 (odd), 12-14 (odd), 15, 16, 15, 16
 Challenge: 20 odd, 21a