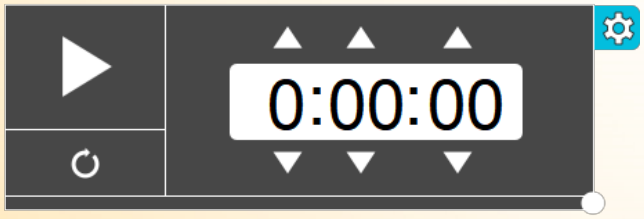
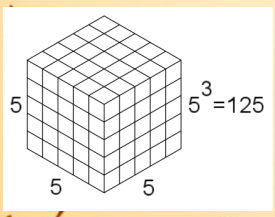
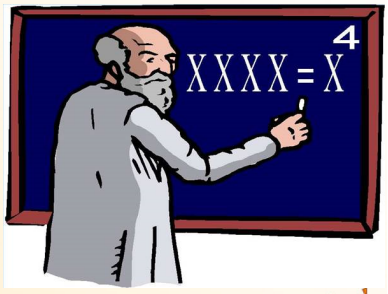

0:00:00

$2 \times 2 = 2^2 = 4$
$2 \times 2 \times 2 = 2^3 = 8$
$2 \times 2 \times 2 \times 2 = 2^4 = 16$
$2 \times 2 \times 2 \times 2 \times 2 = 2^5 = 32$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6 = 64$
$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^7 = 128$

Unit 2 October 2, 2017

Powers and Exponent Laws





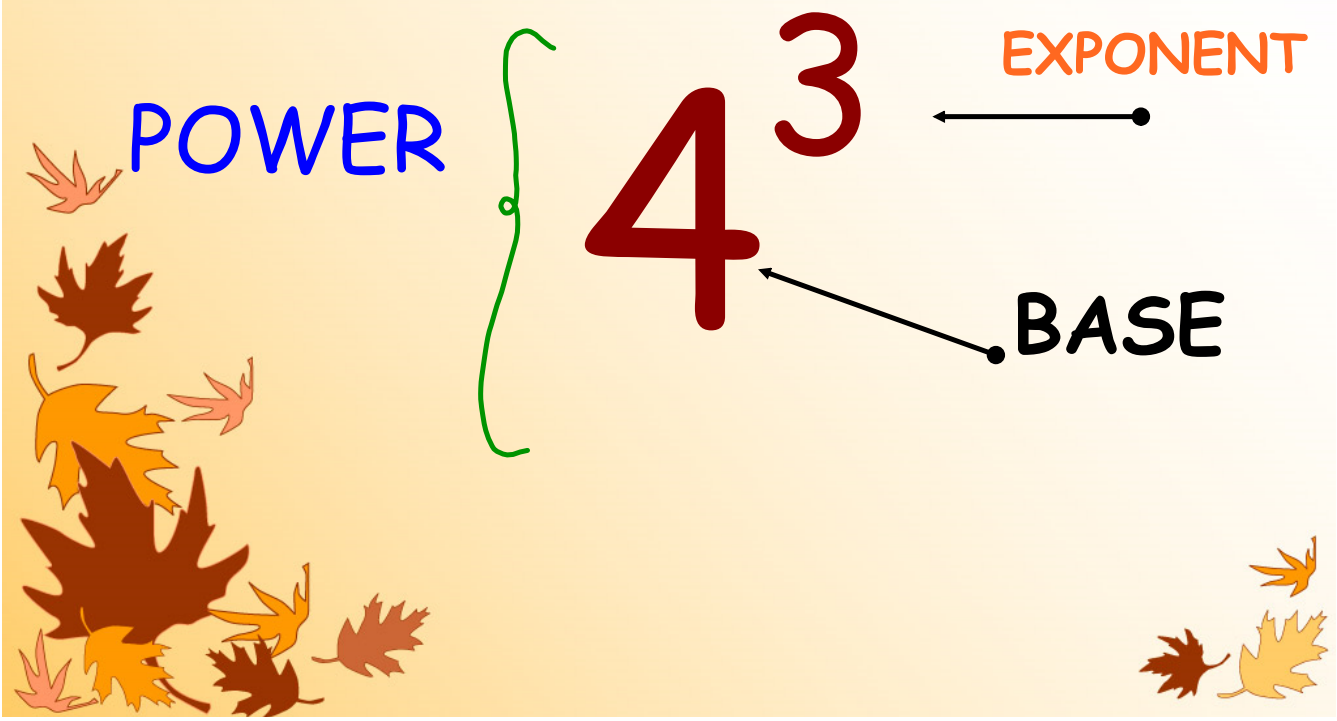
A power is a compact [smaller] way to write a big number.

Instead of saying 4x4x4x4x4x4x4 we say 4^7

Read as 4 to the exponent 7

TERMS TO KNOW:

1. power- an expression of the form a^n, where a is the base and n is the exponent; it represents a product of equal factors; for example, $4 \times 4 \times 4 = 4^3$



125 is the same as 5^3

* 125 is STANDARD FORM

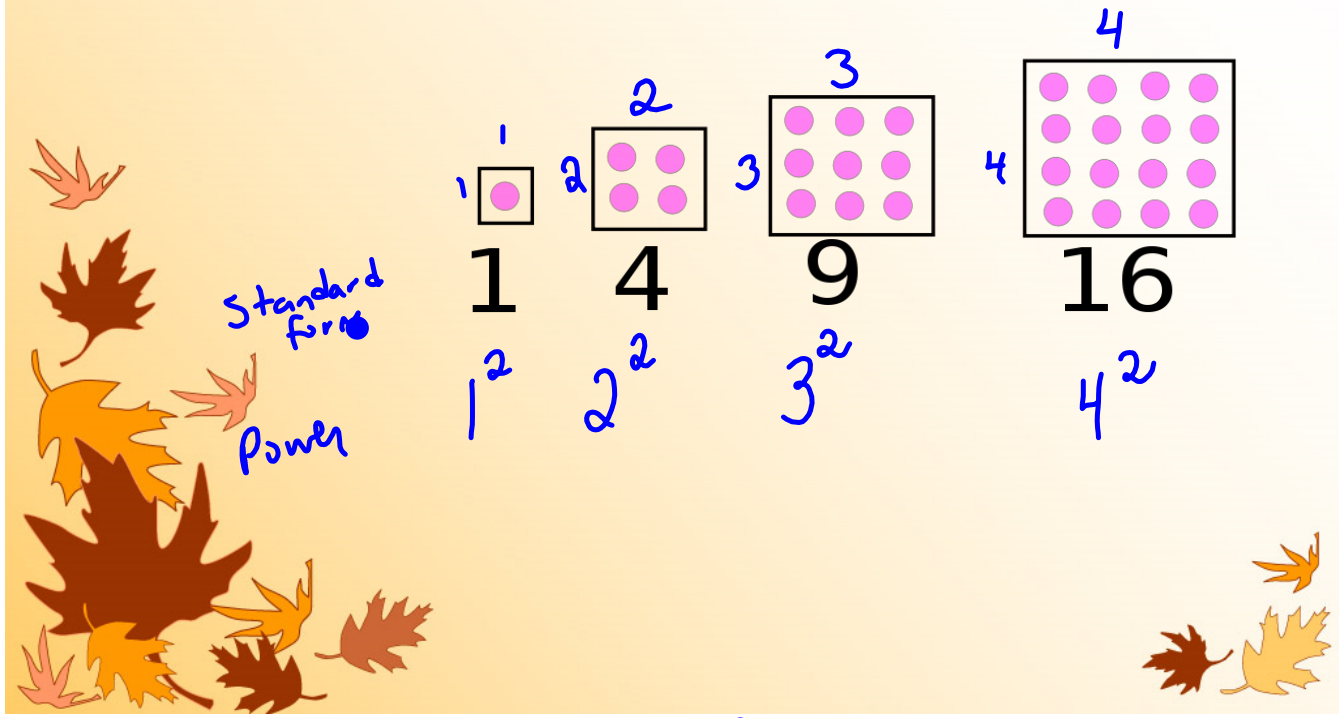
* 5x5x5 is a REPEATED MULTIPLICATION

* And 5^3 is a power.

*5^3 is read as 5 to exponent 3 or 5 cubed

Square Number

- A power with an integer base and exponent 2 is a square number.

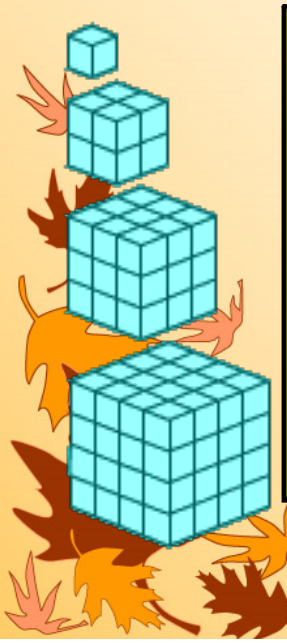


We can write 4^2 in three ways:

1. Standard form: 16
2. As repeated multiplication: 4×4
3. As a power: 4^2

Cube Number

- A power with an integer base and exponent 3 is a cube number.



		POWER
1 is the first cube number	1 x 1 x 1	1^3
8 is the second cube number	2 x 2 x 2	2^3
27 is the third cube number	3 x 3 x 3	3^3
64 is the fourth cube number	4 x 4 x 4	4^3

Write each of the following as:

Repeated Multiplication	Power	Standard form * [Evaluate] *
A. 3 x 3 x 3 x 3 x 3 x 3 =	3^6	729
B. 7=	7^1	7
C. 4 x 4 x 4=	4^3	64

What is the base in each of the following:

A. 8^7 B. $(-10)^5$ C. $(\frac{1}{4})^3$

Base 8 -10 $\frac{1}{4}$

Repeated Multiplication $8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8$

$-10 \times -10 \times -10 \times -10 \times -10$

$\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$

What if a power has a negative sign?

	A. $(-3)^4$	B. -3^4	C. $-(-3)^4$	D. $-(3)^4$
Base	-3	3		
Repeated multiplication	$-3 \times -3 \times -3 \times -3$	$-(3 \times 3 \times 3 \times 3)$		
Evaluate	81	-81		