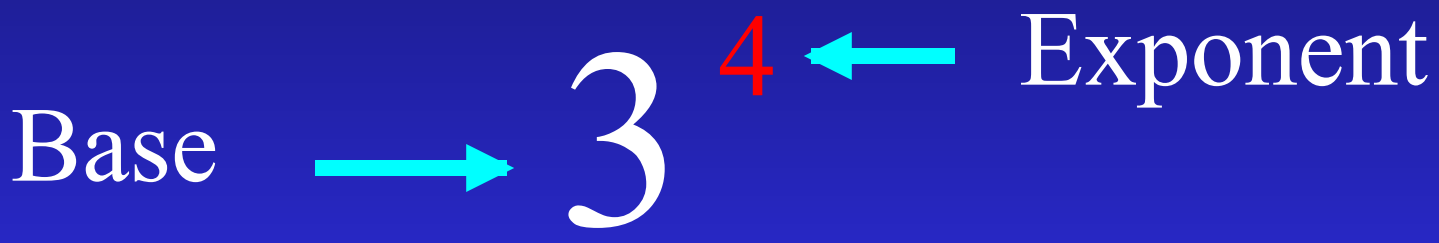
Exponents

By Monica Yuskaitis

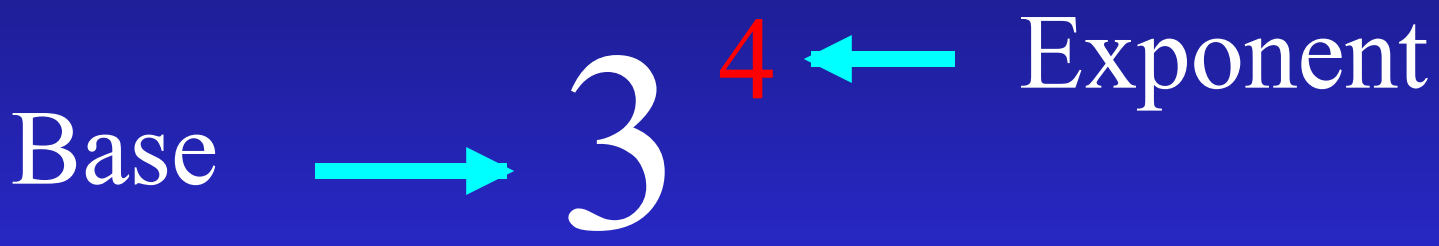
Location of Exponent

- An exponent is a little number high and to the right of a regular or base number.



Definition of Exponent

- An exponent tells how many times a number is multiplied by itself.



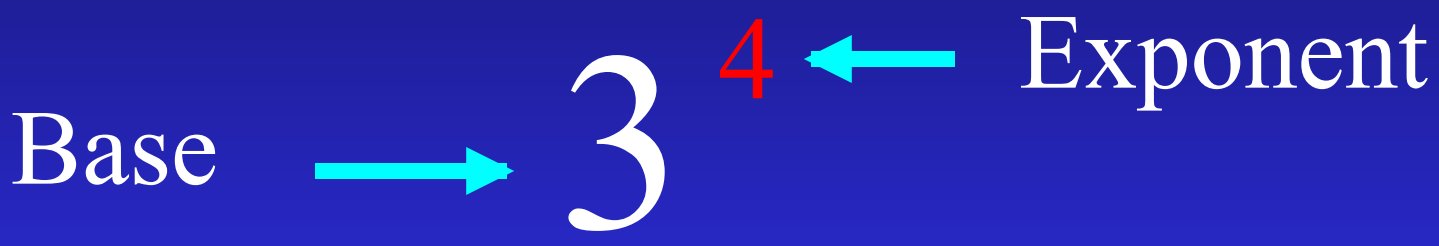
What an Exponent Represents

- An exponent tells how many times a number is multiplied by itself.

$$3^{4} = 3 \times 3 \times 3 \times 3$$

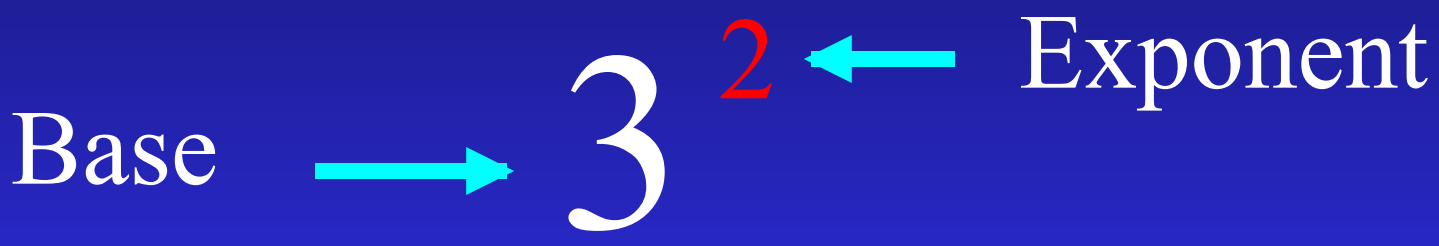
How to read an Exponent

- This exponent is read *three to the fourth power.*



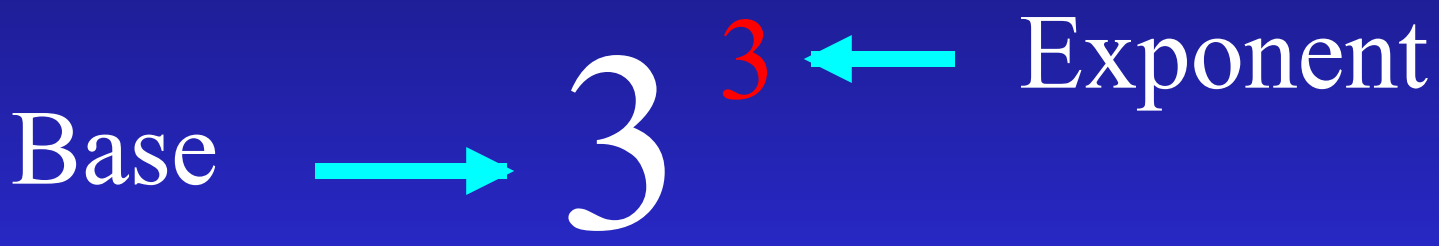
How to read an Exponent

- This exponent is read *three to the 2^{nd} power* or *three squared.*



How to read an Exponent

- This exponent is read *three to the 3rd power* or *three cubed.*



Read These Exponents

3^{2} 2^{3} 6^{5} 7^{4}

What is the Exponent?

$$2 \times 2 \times 2 = 2^{\square}$$

What is the Exponent?

$$3 \times 3 = 3^{\underline{2}}$$

What is the Exponent?

$$5 \times 5 \times 5 \times 5 = 5^{\square}$$

What is the Base and the Exponent?

$$8 \times 8 \times 8 \times 8 = 8^{4}$$

What is the Base and the Exponent?

$$7 \times 7 \times 7 \times 7 \times 7 = \underline{7}^{\underline{5}}$$

What is the Base and the Exponent?

$$9 \times 9 = \underline{9}^{\underline{2}}$$

How to Multiply Out an Exponent to Find the Standard Form

$$3^4 = 3 \times 3 \times 3 \times 3$$

9

27

81

What is the Base and Exponent in Standard Form?

$$4^{2} = \underline{16}$$

What is the Base and Exponent in Standard Form?

$$2^{3} = \underline{\quad 8 \quad}$$

What is the Base and Exponent in Standard Form?

$3^{2} = \underline{9}$

What is the Base and Exponent in Standard Form?

$$5^{3} = 125$$

Exponents Are Often Used in Area Problems to Show the Feet Are Squared

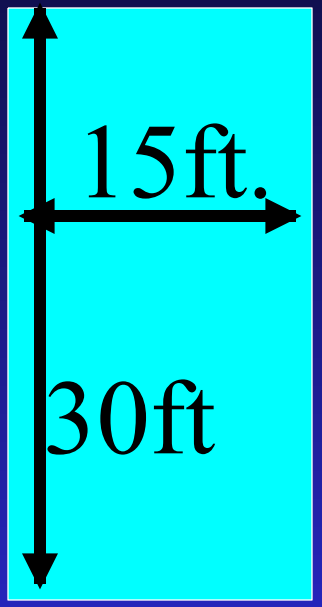
Length x width = area

A pool is a rectangle

Length = 30 ft.

Width = 15 ft.

Area = 30 x 15 = 450 $ft.^2$



Exponents Are Often Used in Volume Problems to Show the Centimeters Are Cubed

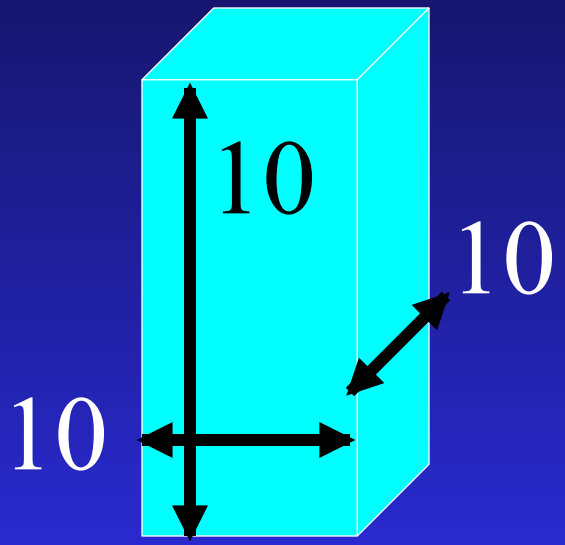
Length x width x height = volume

A box is a rectangle

Length = 10 cm.

Width = 10 cm.

Height = 20 cm.



Volume =

$20 \times 10 \times 10 = 2{,}000$ cm.^{3}

Here Are Some Areas Change Them to Exponents

40 feet squared = 40 $ft.^2$

56 sq. inches = 56 $in.^2$

38 m. squared = 38 $m.^2$

56 sq. cm. = 56 $cm.^2$

Here Are Some Volumes Change Them to Exponents

30 feet cubed = 30 ft.^3

26 cu. inches = 26 in.^3

44 m. cubed = 44 m.^3

56 cu. cm. = 56 cm.^3