WHAT WE WILL LEARN TODAY:  
1. Briefly on exponents

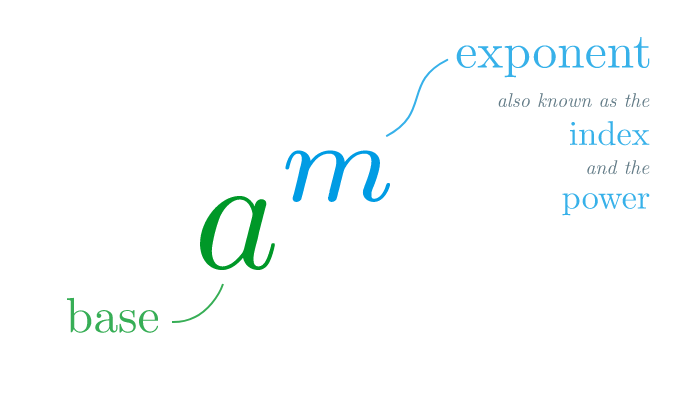
2. A few laws of exponents

3. Expansions of various properties

EXPANSIONS

What are exponents?

Exponents are any number that can be written in am.

Let, a be any real number and m be the power. 

In ***exponents*** we multiply the base to the power times.

For example- 2**3****=2×2×2=8**

In the above example 2 is the base and 3 is the power or exponent. Whenever we get such exponents, we misread 23as 2×3 but the actual or correct reading is 2×2×2.

32 = 25 =

Real numbers are any numbers like whole, natural, integers, fractions, rational and irrational numbers.

Laws of Exponents:

Let, a and b be any real number base, m and n be any real number exponent.

For example: we consider

a=3, b=5 and m=2,

**First law**- **am×an= am+n**

**Important point**: to apply this law both the bases have to be same. Powers may or may not be same.

So, 32×31= 32+1

33=3×3×3= 27

**Second law**- **am÷an= am-n**

So, 32÷31= 32-1

31=3

Third laws- am×bm= (ab)m

So, 32×52= (3×5)2

**Important poin**t- to apply this law bases are different but power has to be the same.

152= 15×15= 225

Question time:

i)42×41= ii)23×13=

Use third law

Use first law

expansions:

let, a be 3 and be 5.

1**.(a+b)2= a2+b2+2ab**

(3+5)2= 32+52+2×3×5 = 9+25+30 =64

2. **(a-b)2**= **a2+b2-2ab**

(3-5)2 =32+52-2×3×5= 9+25-30=4

3. **(a+b) (a-b)** = **a2-b2**

(3+5) (3-5) = 32-52 = 9-25= -6

Question time:

1. 982=
2. (100+2) (100-2)=

