Number of terms: and so on…

$(a+b)^{-1'5}$: +x + x + x/2

(a+b) $^{-1}$: +x + x

(a+b) $^{-0'5}$: + x + x/2

(a+b) ^{0} : x

(a+b) $^{0'5}$: x + x/2

(a+b) ^{1} : x +x

(a+b) $^{1'5}$: x + x + x/2

(a+b) ^{2} : x + x + x

(a+b) $^{2'5}$: x + x + x + x/2

(a+b) ^{3} : x+ x+ x+ x

And so on...

Coefficients:

…

$(a+b)^{-2}$ →0'25

$(a+b)^{-1'5}$ →0'375

$(a+b)^{-1}$ →0'5

$(a+b)^{-0'5}$ →0'75

$(a+b)^{0}$ →1

$(a+b)^{0'5}$ →1'5

$(a+b)^{1}$ →2

$(a+b)^{1'5}$ →3

$(a+b)^2$ →4

$(a+b)^{2'5}$ →6

$(a+b)^3$ →8

$(a+b)^{3'5}$ →11

…

	$\sum exponents$	reason
	→-6	
$(a+b)^{-2'5}$	→-4	-2
$(a+b)^{-2}$	→-2	
$(a+b)^{-1'5}$	→-1	-1
$(a+b)^{-1}$	→0	
$(a+b)^{-0'5}$	→0	0
$(a+b)^0$	→0	
$(a+b)^{0'5}$	→1	1
$(a+b)^1$	→2	
$(a+b)^{1'5}$	→4	2
$(a+b)^2$	→6	
$(a+b)^{2'5}$	→9	3
$(a+b)^3$	→12	
$(a+b)^{3'5}$	→16	4

…

$(a+b)^{-0'5}$: [0'375. $a^0 + 0'375. b^0$]= 0'75.

[0'375. $a^{+1} + 0'375. b^{-1}$]=?

$\sum$ coeficient: 0'75 →0'75/2= 0'375 ,

$\sum$ exponent=0 →(0 0), (+1 -1), (+2 -2)...

or: $(a+b)^{-1}$: [+(1/4). $a^0 + \frac{1}{4}. b^0$]=1/2

[(1/4). $a^{+1} + (\frac{1}{4}). b^{-1}$]= [0'25. $a^{-1} + 0'25. b^{+1}$]=?

where $\sum$ coeficient: 0'5 = ½ →0'5/2= 0'25

while $\sum$ exponent=0 →(0 0), (+1 -1), (+2 -2)...

The idea is that in expansions of number of terms ≥2.5, the central terms show a larger coefficient than the external ones. There is another rule: all terms have the same value $\sum exp.$(the rule is to mix "a" or "b" or "a" and "b").

The terms in nº have nothing to do with the values of the coefficients

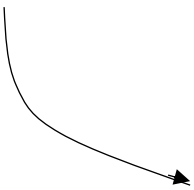
And conclude that each binomial fits the number of terms already calculated previously.

I also do another expansion: $(a+b)^{1'5}$taking into account the number of terms (x + x + x/2: “2'5 terms”).

Another example:$(a+b)^{-1'5}$

Also nº of terms = "-2'5" →

Except from $(a+b)^2$



	- 1	- 1	- 0'5
	1	2	1
	x 1	x 2	x 0'5
	-0'7	-1'4	- 0'35

-0’7-1’4-0’35~ -2’5 terms

$\sum$ Coeficient: 0'375 →0'375 x 0'7 → 21/80 0'375 x 1'4 → 21/40 0'375 x 0'35 → 21/160

$\sum exp$:-1 : -1 →2'5

x →0'7 , y →1'4 , z →0'35

then: x=-7/25 , y=-14/25 , z=-7/50

$(a+b)^{-1'5}: .\left(\frac{21}{80}\right).a^{-7/25}+\left(\frac{21}{40}\right)a^{-14/50}b^{-14/50}+(\frac{21}{160})b^{-7/50}$

Now I will try this: $(a+b)^{0'2}$:

$\sum exp.: 0'4$ $\sum coeff.: 1'2$ nº of terms: 1'2

Because $(a+b)^0$=1 →1 term

$(a+b)^{0'1}$= 0'1 →1'1 term

$(a+b)^{0'2}$= 0'1 →1'2 term

…

$(a+b)^{0'5}$= 0'1 →1'5 term

and: $\sum coeff.: 1'2$ $(a+b)^0$= 1 →1

$(a+b)^{0'1}$ →1'1

$(a+b)^{0'2}$ →1'2

…

$(a+b)^{0'5}$ →1'5

and: $\sum exp.: 0'4$ $(a+b)^0$ →0

$(a+b)^{0'1}$ →0'2

$(a+b)^{0'2}$ →0'4

$(a+b)^{0'5}$ →1

…

so:$(a+b)^{0'2}$

evaluate this option: 1'2 terms: 1 1 x 0'2

$\sum coeff.: 1'2$ 1 0'2

With the exponents they should be the same:$\sum exp.: 0'4$

if 0'4 →1'2

"x " ←1 "x"= 1/3

"y" ←0'2 "y"= 1/15

We have almost found the solution!!

$(a+b)^{0'2}$= 1. $a^{1/3}.b^0$+ 0'2.($a^0.b^{1/15}$)

All of these rules follow the same pattern: by definition, the third term is smaller, so the coefficients must also be smaller (?).

I dare to write this too: $(a+b)^{0'1}$number of terms: 1'1

$\sum coeff.: 1'1$

$\sum exp.: 0'2$

2 terms: 1 1 x 0'1

$\sum coeff.: 1'1$ 1 0'1

And, referred to $\sum exp.: 0'2$ 0'2 →1'1

"x "←1 "x"= 2/11

"y" ←0'1 "y"= 1/55

$(a+b)^{0'1}$=$1.a^{2/11}.b^0 + 0'1.a^0.b^{1/55}$

Can it be considered a method or is it simply "madness"?

I have taken into account that the fractional terms (0'1, 0'2...) show a magnitude proportional to the percentage they represent.