Magazine

LOREM IPSUM LOREM IPSUM DOLOREM AT CONCEPTUER

N°01 - Septembre 2011

REPORTAGE

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

PORTRAIT

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

BALADE

LOREM IPSUM DOLO REM AT CONCEPTUER ELUS MODUS

LOREM IPSUM

ISPAMCO LUPTAE UNDE QUAED NEQUE PORRO

tribune

Lorem Ipsum?Directeur
lorem ipsum at
conceptuer

Madmagz.com
Le magazine de lorem ipsum doloem ?ipsum at maled
Directeur de la publication :
Jean Dupond
rédacteur en chef : Jean Dupont
Rédaction : Jean Dupont, Marie Durand
Mise en page : Jean Dupont.

Adresse : 55 rue Jean Dupont,
75000 paris
tél. : 00 00 00 00 00
www.madmagz.com

Sed ut perspiciatis unde omnis

Med ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

Sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non nucommodi consequatur? Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt neque porro.

Quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. ed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

contents




02 **LOREM** Les ernim ipsam vo lup tatem quia voluptas

04 **IPSUM** Sit aspernatur aut odit aut fugit, sed quia

06 **DOLOREM** Consequuntur magni dolores eos qui ratione

08 **ERNIM** Les ernim ipsam vo lup tatem quia voluptas

10 **CONSEPTUER** Sit aspernatur aut odit aut fugit, sed quia

14 **DOLORE** Consequuntur magni dolores eos qui ratione

08 **SIT ANIM** Les ernim ipsam vo lup tatem quia voluptas

10 **NUMQUAM** Sit aspernatur aut odit aut fugit, sed quia

14 **BEATE** Consequuntur magni dolores eos qui ratione

Level 1 is an easy fraction

For the first level, it is necessary to calculate:

$$\frac{1}{3}+\frac{7}{8}$$

This level is easy because you just need to convert with a common denominator.
In this calculation, we must multiply the fraction one third by eight and the fraction seventh eighth by three. Then we can add the two. Which gives us twenty nine out of twenty four.

$$\frac{a^{6}}{a^{7}}$$

Level 2 is simplifying a power

For this level, you have to simplify the powers.

This level is harder.
To succeed, you have to subtract the two powers. So you have to do six minus seven.
The result is A exponent minus one.

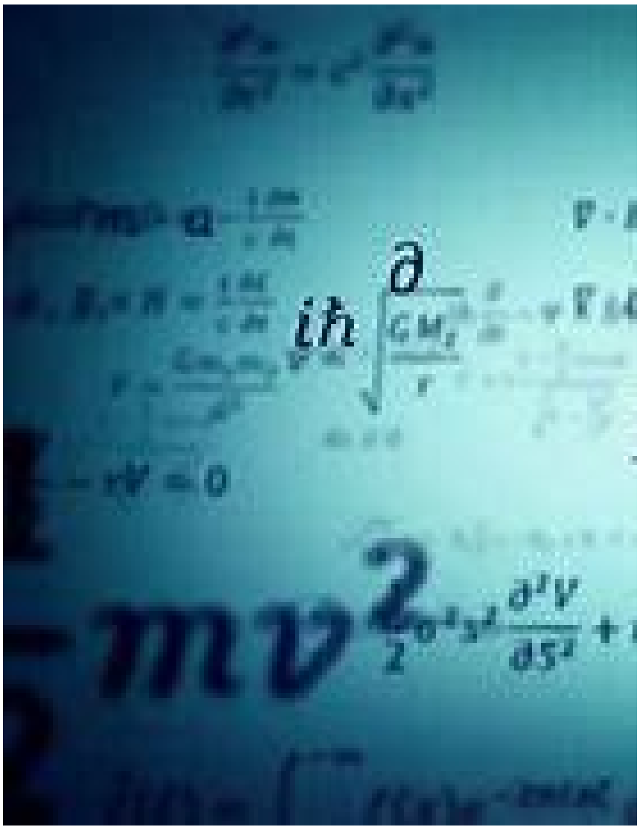
Last level is a boss

This level consists in simplifying the square roots into surd forms.

It's really a hard level because

$$\sqrt{48}+5\sqrt{27}-3\sqrt{108}$$

literal calculation

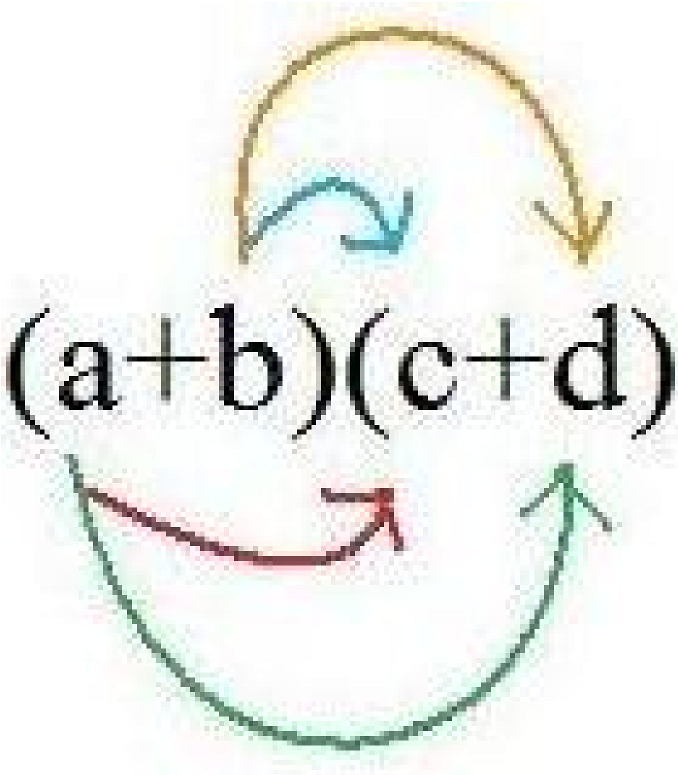


But what is the literal calculus in fact ?

The **literal calculation** is the calculation with numbers and

letters where each letter designates a number (whose value we do not know), the aim is to determine the value of the unknown.

Example: 2a - 6a. To calculate 2a - 6a, add 2 - 6 - 8. then we obstain 2a - 6a - 8a.



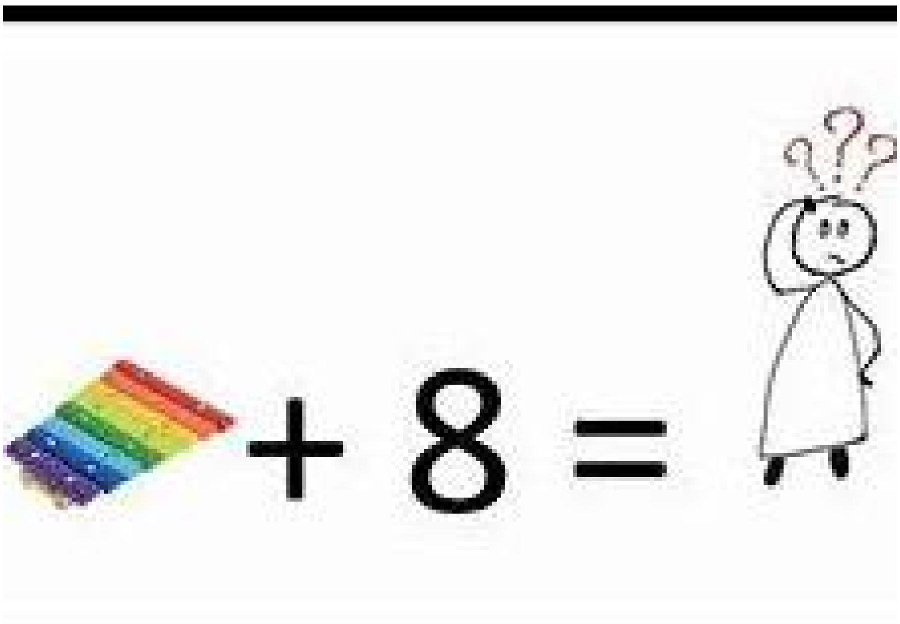
But how to calculate letters and numbers ?

It's very simple, we can find a formula which adapts for all unknown.

The fromula is ka-kb -k (a-b) or (a-b)k.

You can choose any of the two, it won't change the final result.

The error to avoid



This way of not making a mistake may seem useless but no, it will serve especially the literal calculation.

The way not to be wrong is the following, most of the time calculations are performed too quickly which leads to mistakes.

But you should know that you can't mix fruits and vegetables because they don't taste the same.

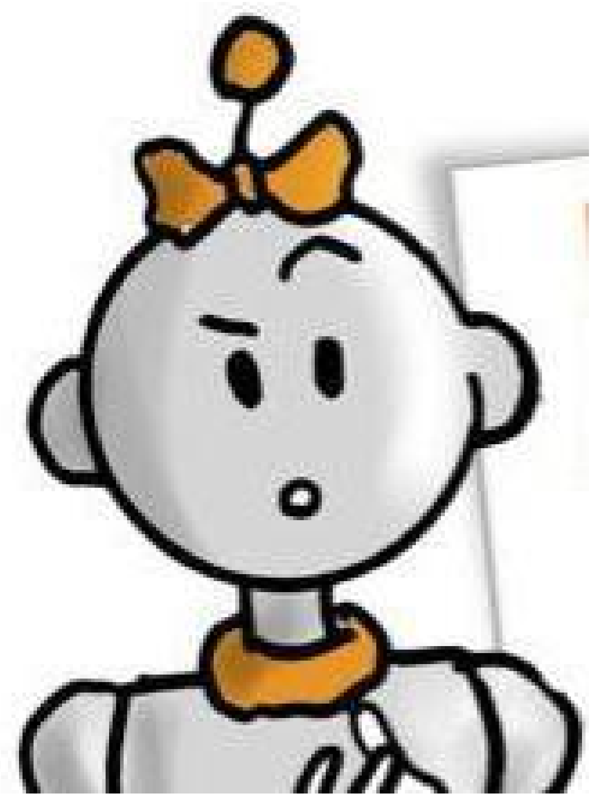
It's the same with numbers and letters.They do not have the same unity.

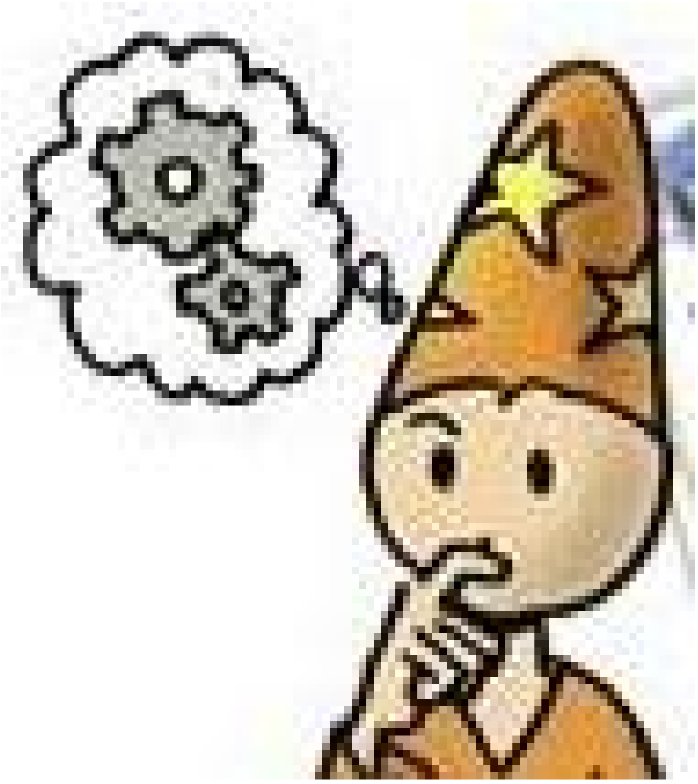
First exercice

Choose the right answer.

This program is run for x 3:
- subtract 8, we get :- 11 OR -5 OR 5
- multiply the result by -4, we get: -44 OR 20 OR -20
- add a quadruple of the number of departures that is:-12 OR 12 OR 1.2

we get: 32 OR -32 OR -42.8





Second exercice

Factor the following expressions as far as possible and reduce factors. write your calculation on a sheet paper

$A(x)= (4x+3)^2 - 1$

$B(x)= 4 - (2x + 1)^2$

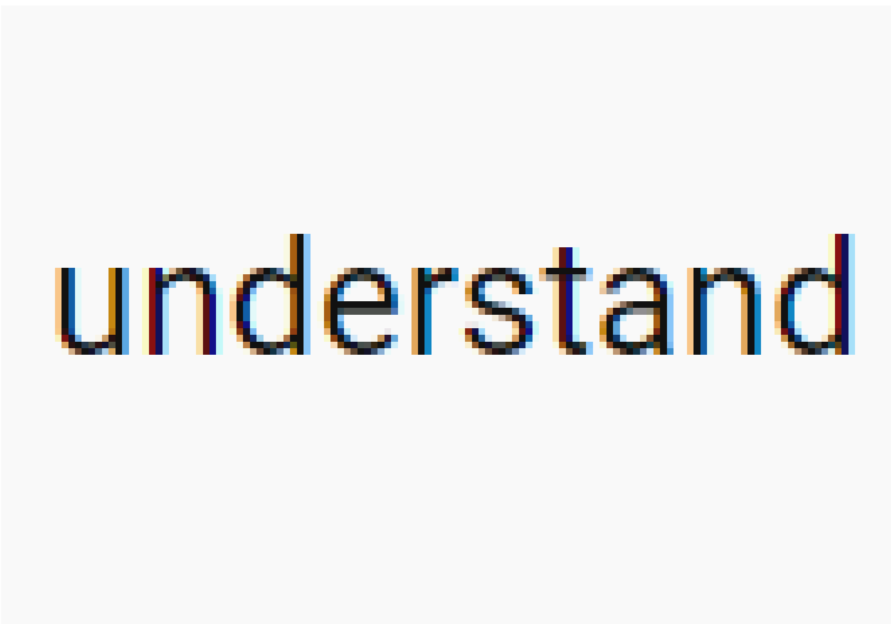
Third exercice

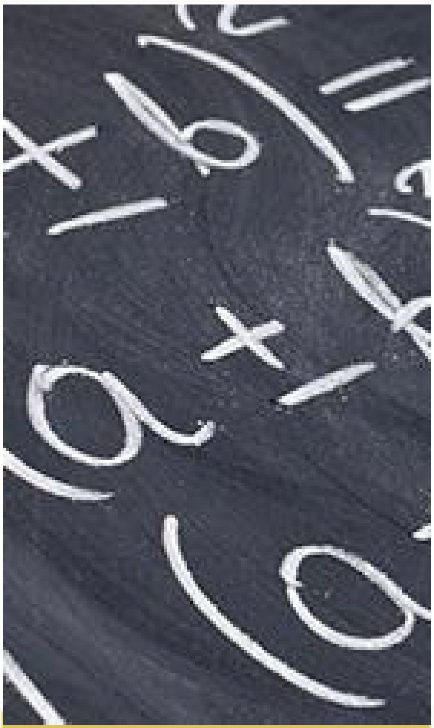
Expand the expression b(c-d).
Choosethe connect answer.

What is the developed form of b (c-d)?
-bc - bd
-cb - bd
-db - bc

multiply out the expression (2(3-5a))?

- 6 - 10a
-10a - 6
- impossible





First exercice

(State clearly the program)

Choose the right answer. This program is run for x-3: subtract 8, we get : -5

multiply the result by -4 and, we obtain:
 -5×(-4)=20
add four times the starting numbers, this gives: 4×3=12

and we get: 20+12=32

Second exercice

Factor the following sentences as much as possible and reduce the factors. writes your calculation on a sheet of paper

A (x) (4x-3)2 - 1
 B (x) - 4 - (2x - 1) 2

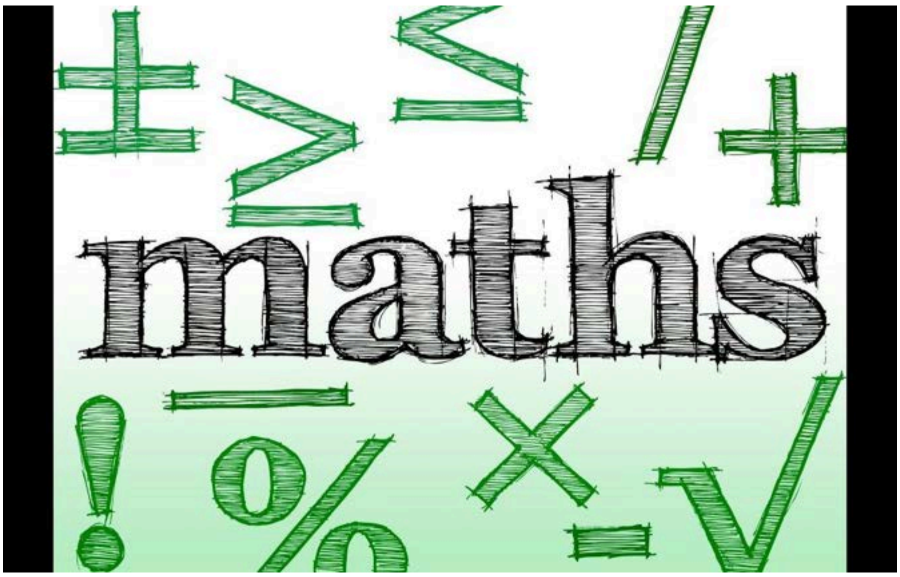
$$
\begin{aligned}
A(x) &= (4x+3)^2 - 1 \\
&= (4x+3)^2 - 1^2 \\
&= [(4x+3) - 1][(4x+3) + \\
&= (4x+2)(4x+4) \\
&= 2(2x+1) \times 4(x+1) \\
&= 8(2x+1)(x+1)
\end{aligned}
$$

$$
\begin{aligned}
B(x) &= 4 - (2x+1)^2 \\
&= 2^2 - (2x+1)^2 \\
&= [2 - (2x+1)][2 + (2x + 1 \\
&= (2 - 2x - 1)(2 + 2x + 1) \\
&= (1 - 2x)(3 + 2x)
\end{aligned}
$$

Third exercice

Ok! b (c-d)-bc-bd. To develop b (c-d), multiply b successively by c and d. b (c-d)-b×c-b×d-bc-bd.

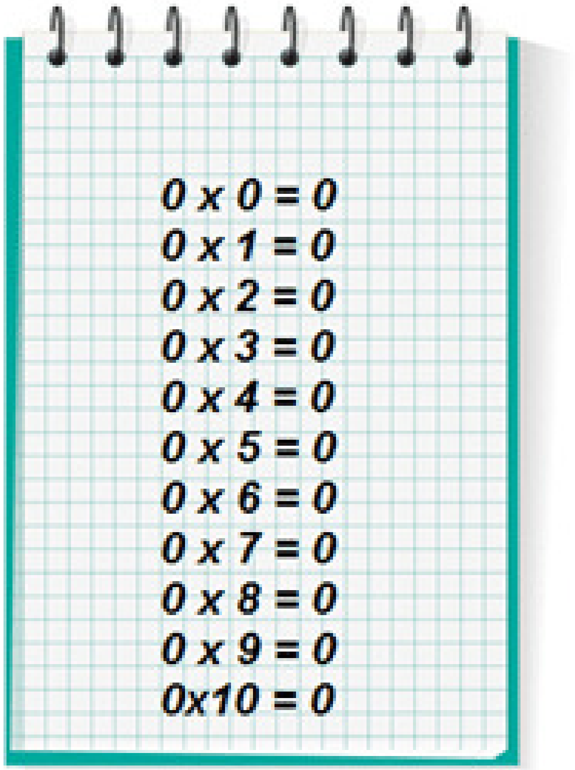
Just! the correct answeris actually 6-10a. When there is a times an expression in brackets , we apply the distributivity: rule multiply the 2 by 3 and then by 5a

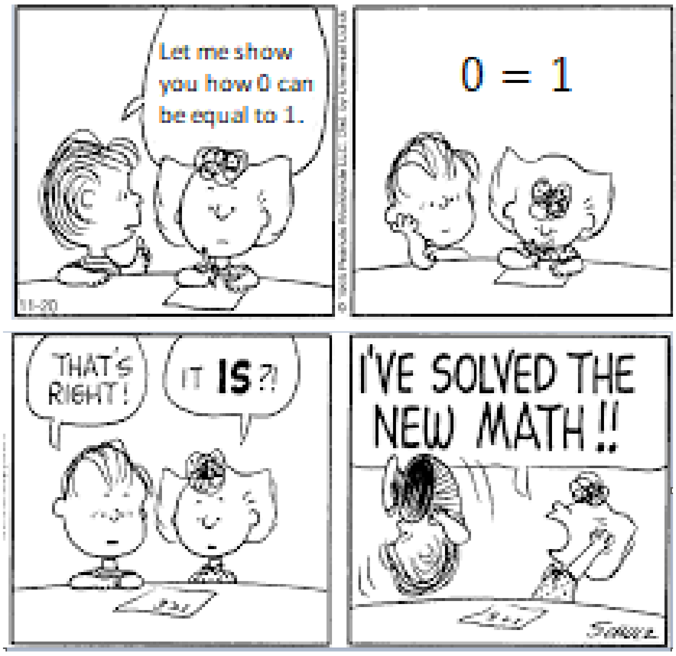


Can 0 be equal to 1 ?

You surely already heard your math teacher saiying to students that 0 is not nothing right ? well once he told me that, I did some research ...
And see, I saw people say that 0 can be equal to 1!!

when I saw this I was very surprised at first ! 0 can't be equal to something since 0 is ... Well... Equal to 0 ! After watching some videos on the internet I understood why some person might think its true... So... See.....





How 0 CAN be equal to 1

Let's explain how 0 can be equal to 1 .
But before, I stongly recommand to watch John Hush's videos explaining this problem.
Prove:0=1
Proof:0=0+0+0+0+0+... to infinity
We can also say : 0=(-1+1)+(-1+1)+(-1+1)+(-1+1)+...
And since they are all the same number with the same operation we can change their place !
So:0=1+(1-1)+(1-1)+(1-1)+(1-1)+...with a +1 at the end of infinity So: 0=1+0+0+0+0+0+... and finally:0=1
we can now say with our proof that 0=1 !

Extras

Of course in real life 0 can't be equal to 1 and this method is not very accurate...
So don't say this as an excuse when you go to shopping !

Origin of the pictures :
-Snoopy (second picture)

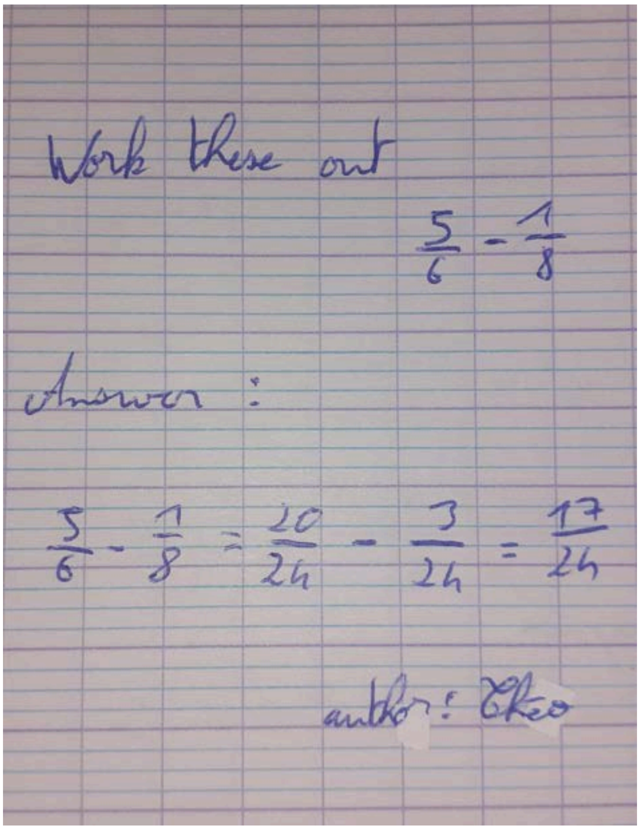
-Tribulations d'une caissière (third picture)

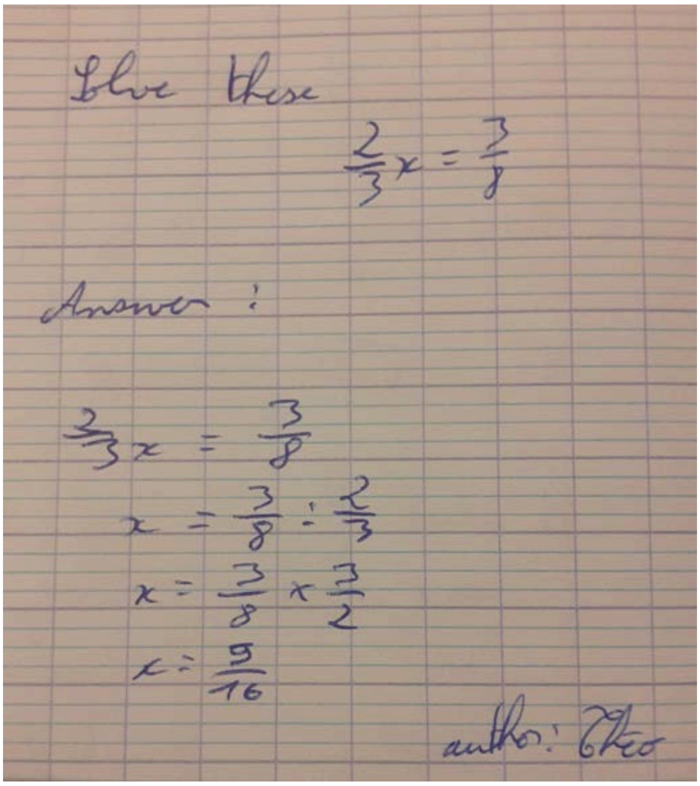
and the videos from John Hush introducing the 0=1 problem :

Proof that 0=1 :
https://youtu.be/P4GgBr-INMk

Subtracting fractions

This subtraction is simple, just put the fractions on the same common denominator. Thus multiply by 4 the numerator and the denominator of the first fraction to put on 24 and by 3 the numerator and the denominator of the second fraction. And then just subtract the second from the first fraction and keep the common denominator.



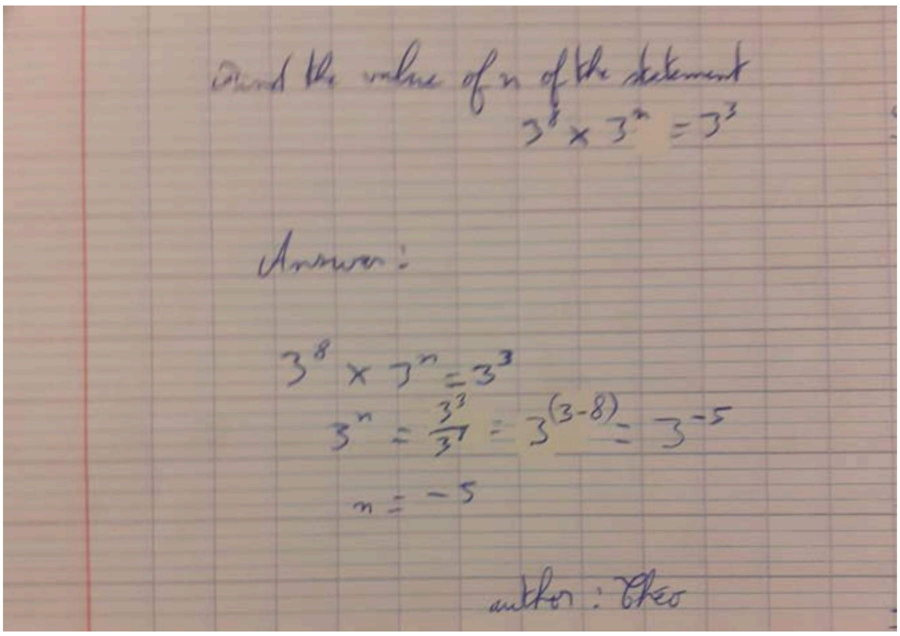


Equation with fractions

This equation is quite simple, transfer the multiplication of 2/3 to the other side by dividing by 2/3 then convert it to multiplication by using its reciprocal. And then multiply numerators between them and denominators between them. Be careful to put in division on the other side and to transform the division into multiplication with the reciprocal of the fraction.

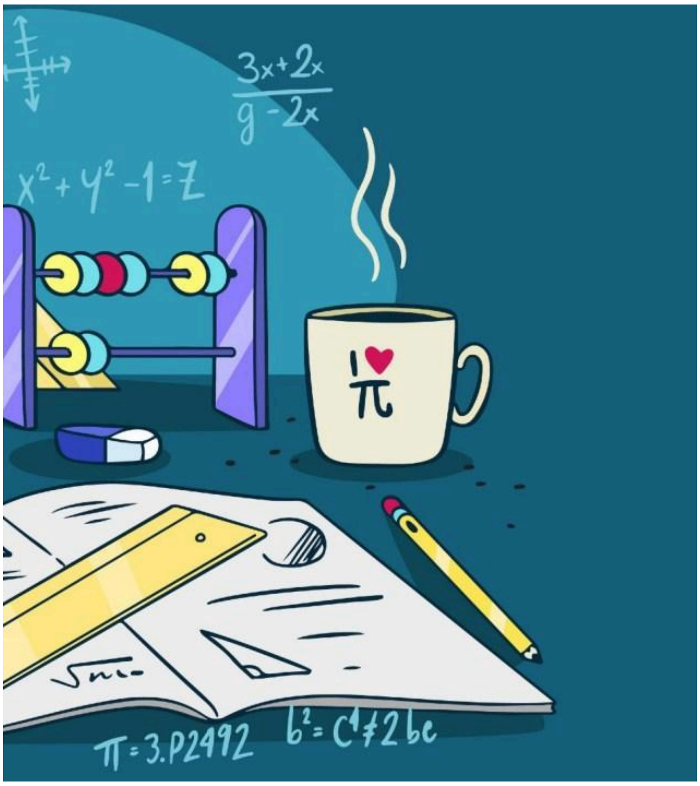
Value of n in a statement

To find the value of n in this statement it's a bit more difficult, transfer 3 to the power of 8 to the other side in division then we must make the rule of powers by dividing, we must subtract the power of the denominator from the power of the numerator and keep the 3. We therefore find 3 to the power of -5 which leads to n = -5. For this calculation be careful when dividing the 3 with the powers and subtract the powers while keeping the 3.



Calculation Mission n°1 :

The first calculation is to calculate the decimal equivalent off: 5 / 8x15 = ?. This calculation is a bit difficult because there is a division and a multiplication. In addition there is a digit above the table of 10 and also with a decimal result. The answer to this calculation is 9.375.

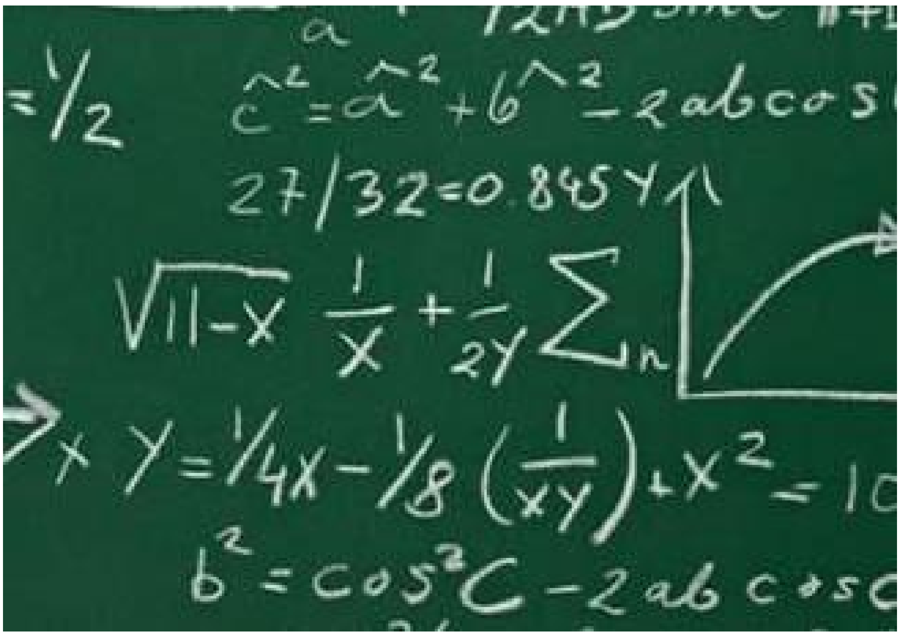


Calculation Mission n°2:

The second calculation is: √40 =?. It is a simple calculation but with a small difficulty, because the way to write the result is slighty different from what we see. The result result is 2√10.

Calculation Mission n°3:

The third calculation is: 9-3: 5 + 1 = ?. This calculation is simple in my opinion but the decimal equivalent of the result can be a bit long to find sinse there is a priority rule. The result is 9.4.



level 1

To solve is calculated at level 1, we must:
-first, note that -2 ^ 2 = -4 and that it vanishes with +4
-second, we must calculate the division -6 divide by 2 which is equal to -3
To conclude , we can say that -2 ^ 2-6 / 3 +4 = -3

$$-2^2 - \frac{6}{2} + 4$$

$$6x^2 \times 3x^4$$

level 2

To solve is calculated at level 2, we must:
-first, we must multiply the values so 6 times 3 = 18
- second, you have to multiply the variables so x ^ 2 times x ^ 4 = x ^ 6
To conclude , we can say that 6x ^ 2 times 3x ^ 4 = 18x ^ 6

level 3

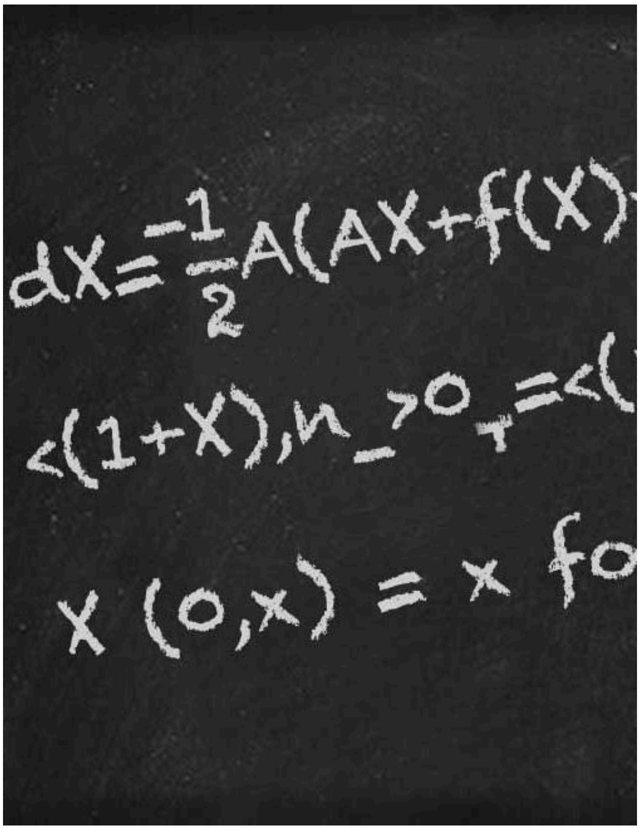
To solve is calculated at level 3, we must:
-first, note that 2 ^ 2 = 4
- second, add 4 with 4 which is equal to 8
-in third, divide -6 by 2 which is equal to -3
-in fourth, add -3 with 8 which is equal to 5
To conclude , we can say that -6 / 2 + 4 + 2 ^ 2 = 5

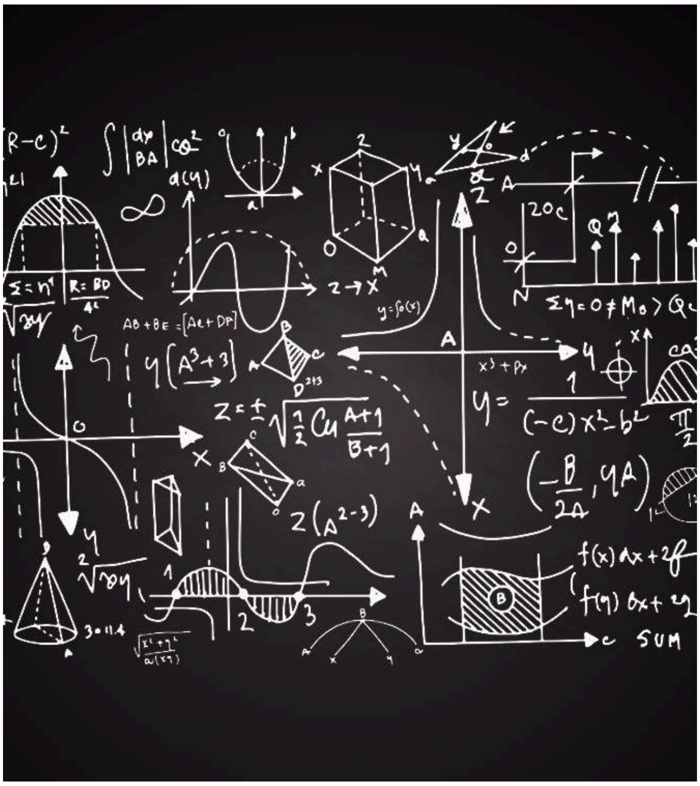
$$-\frac{6}{2} + 4 + 2^2$$

Calculate : $5^2 + 3$

The difficulty is easy if you now how to calculate power.

You have to do 5x5 =25 and add 3
So 28 is the answer.



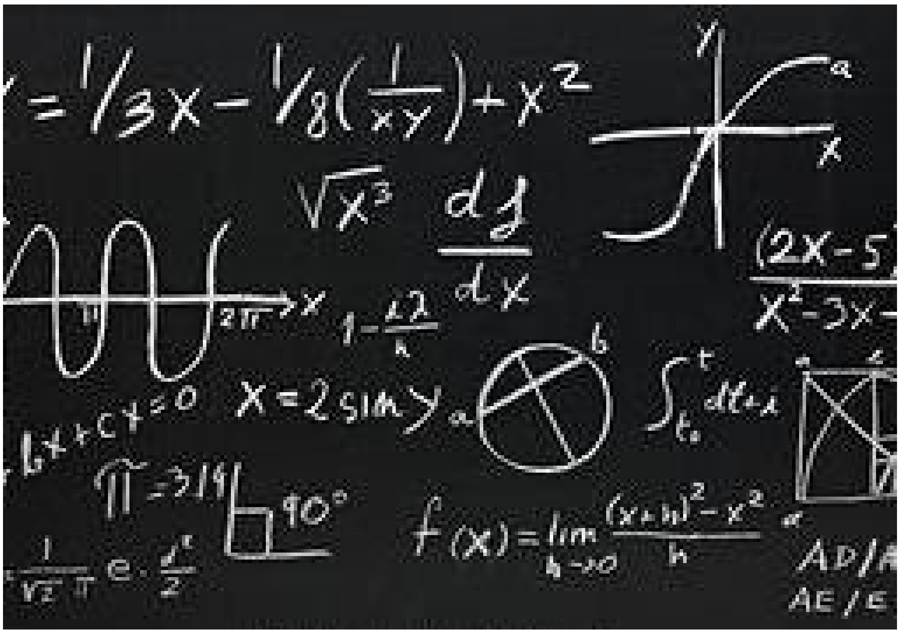


Calculate : $4(7\times10^2)$

This is not very easy because there is 2 multiplication to do.
answer : You have to do in first
$7 \times 10^2 = 700$ and
$4 \times 700 = 2800$

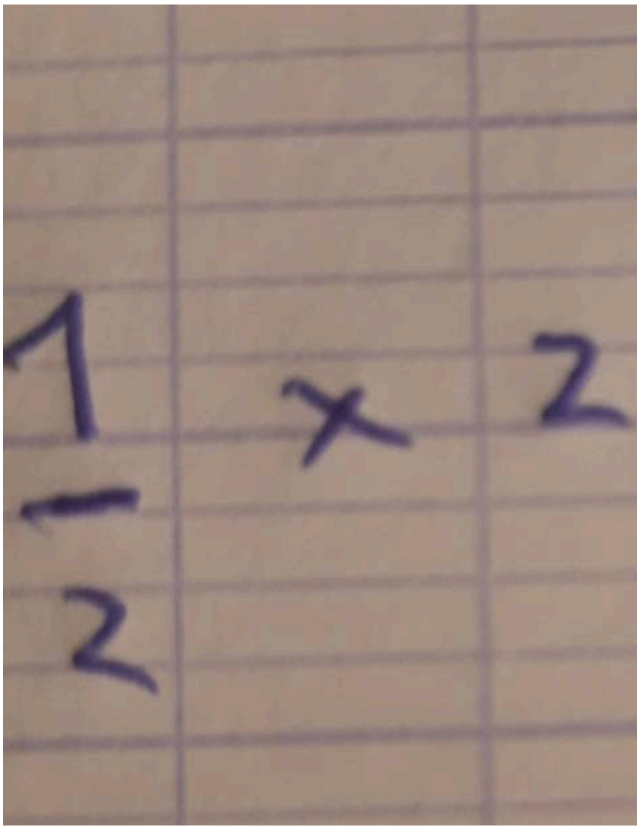
Calculate : 4(3x+5)

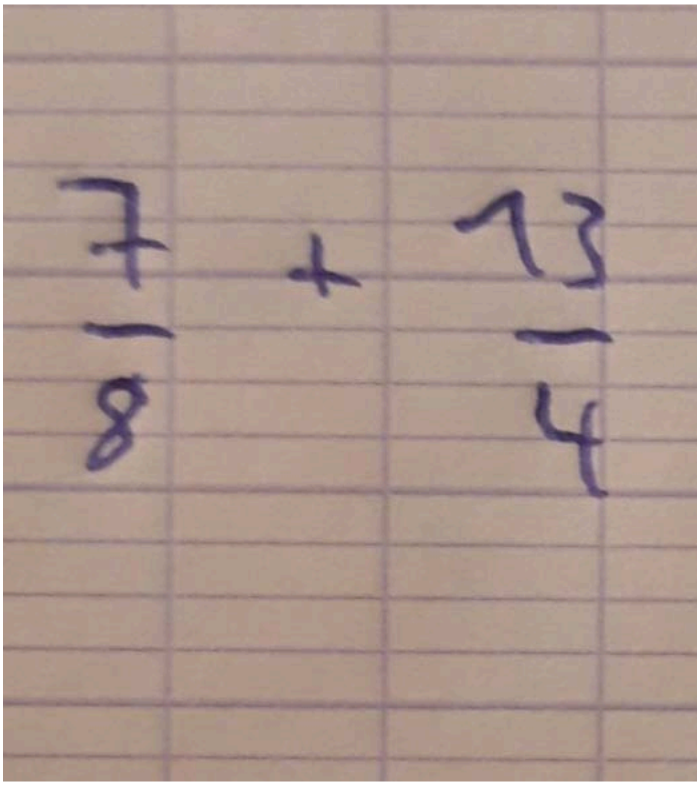
This is hard because you have to multiply two number.
For this u have to multiply by 4 : 3x and 5
So is 12x +20 the answer



Function :

This calculation is easy, it's a basic calculation.
In this calculation, you have to multiply half by two to get three.
You have to multiply.



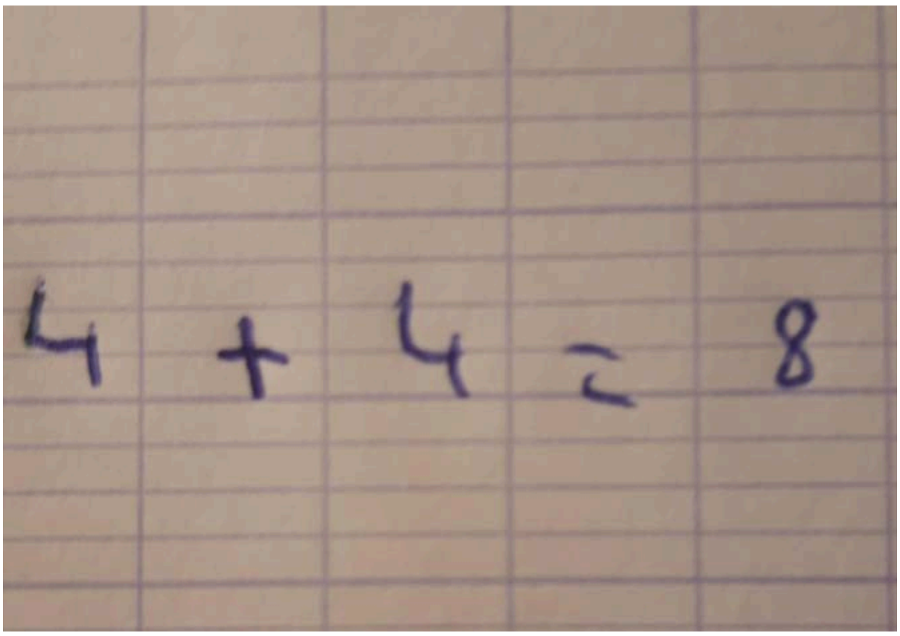


Function :

This calculation is easy, it's a fraction calculation.
You have to make an addition.
In this calculation, you have to add seven-eighth to thirteen-quarter to get three.

Addition :

This calculation is easy, it's a basic calculation.
Four plus four is equal to eight.
You have to make an addition.



addition of fraction

we take the numerator (eight and six) and we subtract them between them
The result is two on ten
we take the numerator (one and six) and we subtract them between them The result is minus five on five

multiplication of fraction

we multiply the numerator per the numerator (seven and seven)
and the denominotor per the denominator (twenty and ten)
the result is forty on two hundred
we multiply the numerator per the numerator (five and five) and the denominotor per the denominator (ten and heigt) the result is twenty five on eighty

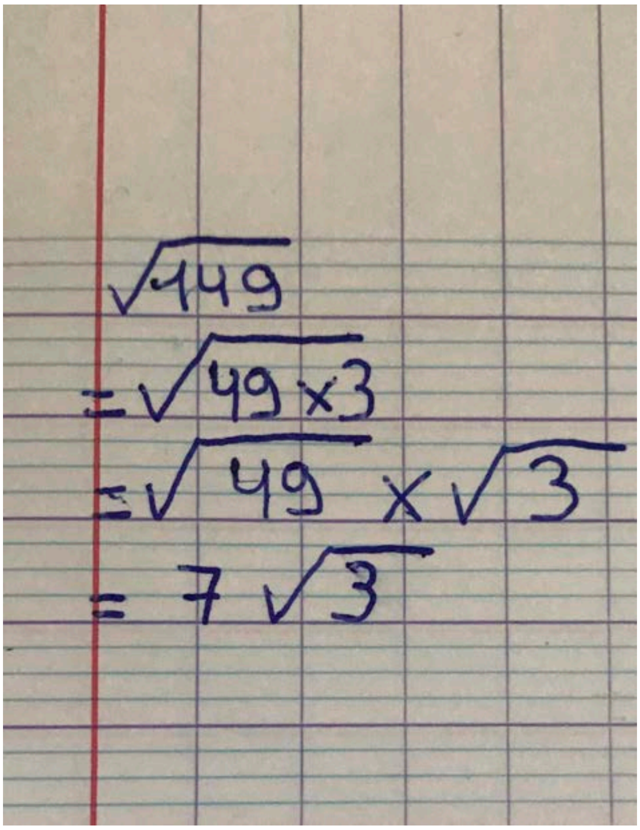
exemple

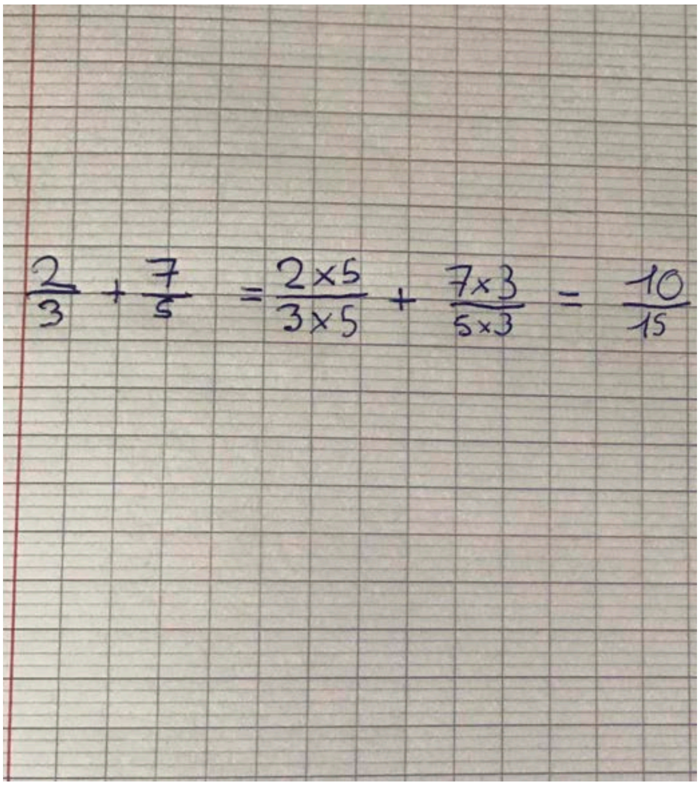
(4/5)-(3/5)=0.2
(5/10)-(8/10)=-0.3
(6/8)-(5/8)=0.125
(15/20)-(4/20)=0.55

(4/5)*(3/5)=0.48
(5/10)*(8/10)=0.4
(6/8)*(5/8)=0.46875
(15/20)*(4/20)=0.15

Square roots

Some square roots are difficult to calculate because they are not all perfect squares, i.e. as in the example opposite the square root is not perfect because it does not give a whole number as for example the square root of 121. To solve the calculation if against I took 49 since it is a divisor of 147, and multiply 49 by 3 because 3*49 = 147 . then separate the square root of 49 from the square root of 3. Then take the square root of 49 which is 7 and keep the square root of 3. I find this kind of calculation rather difficult.



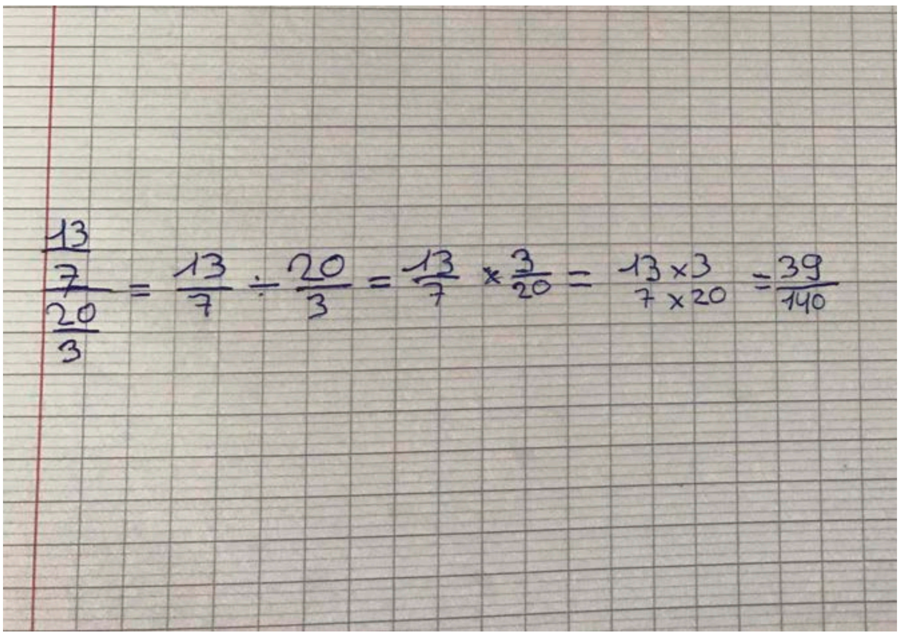


Adding fractions

Let's add fractions that do not have the same denominator. First of all, equal must be the same, so multiply denominator 3 and numerator 2 by the denominator 5 and multiply denominator 5 and numerator 7 by the denominator 3. This will give 10 over 15 + 21 over 15. Now that the denominators are common, add the numerators, which gives us 31 over 15. This calculation is rather simple.
Sorry but I can't fit all my calculation on the picture.

Dividing fractions

To calculate the fraction division A over B divided by C over D is equivalent to make A over B multiply by D over C. Thus in the example 13 over 7 multiplied by 3 over 20 which gives 39 on 140
This calculation is easy - just remember (A/B)/(C/D) = (A/B)*(D/C)



$$\frac{6}{7} \times \frac{2}{3} = \frac{12/3}{21/3} = \frac{4}{7}$$

By EVAN SKRYVE

We multiply six times two in the numerator and seven times three in the denominator, which gives us twelve over twenty-one. We divide the fraction by three, which gives us four out of seven.

$$\begin{aligned} \sqrt{75} &= \sqrt{15} \times \sqrt{5} \\ &= \sqrt{3} \times 5 \times \sqrt{5} \\ &= \sqrt{3} \\ &= 3 \end{aligned}$$

By JULYAN NOURRY

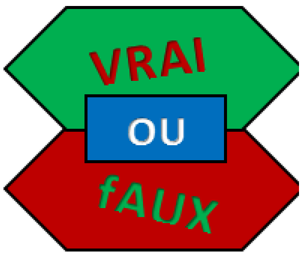
This calculation seems difficult but when you break it down it's more simple because the two five in the square root cancel out and at the final you get square root of three and the result it's three.

By GABRIEL POIDEVIN DE C.

1) On this riddle we can see that if we calculate with an even or odd number the result will always be even. This we check, and I will let you check on your side. If we choose the number 2 the result will be equal to 18 and with 4 the final result is equal to 22. 2) 8 + 8 x 11 equals 8 + 88 and then to 96 when adding.
3) 6 ÷ 2 (1 + 2) gives 6 ÷ 2 x 3 then we multiply 2 by 3 and finally divide 6 by 6 which gives the final result of 1.

1. $\boxed{4 + (7 + x)\ 2}$

Do we still get an even number ?



2. $8 + 8 \times 11 = 8 + 88$ $= 96$	**3.** $6 \div 2\,(1 + 2) = 6 \div 2 \times 3$ $= 6 \div 6$ $= 1$

bB1-Calculate with powers

1)Calculate the twice powers
2)Calculate the numbers in brackets
3)Bring the calculation to its end
The final result of the addition is 230,496

$$3(4^3 \times 7^4)$$

$$\frac{4}{8} - \frac{7}{4} + \sqrt{25} * \sqrt{121}$$

2-fractions and square root

1)Calculate the square root of 25 and 121
2)Multiply these two results
3)Bring the fractions to one common denominator
4)Subtract the two fractions
5)Add the remaining number

3-The hardest

1)Calculate the square roots of the first fraction
2)Calculate the second fraction
3)Multiply these two new fraction
4)Complete the calculation

$$\frac{\sqrt{36}}{\sqrt{196}} * \frac{4+3}{20-7} +57-61$$

How to add or substract 2 fraction

$$\frac{5}{6} - \frac{1}{8} = \frac{17}{24}$$

WORK THIS OUT !

For this kind of calculation, you have to bring the fractions to the same denominator. Then you add or substract only the numerators only the numerators.

Then you put the result on the same denominator as the fractions you just computed, and you got the difference !

! WARNING !

You can't use this technique when you want to multiply or divide 2 fractions !!

Let's explain the calculation

this calculation is difficult because he has several steps

firstly, is to multiply both sides by 2 (the fraction by 2 and multiply the number 1 by 2).

secondly, add 3 to 2 and add 3 to minus 3

finally, divide 3x by 3 and divide 5 by 3

the result is 5/3

$$\frac{3X-3}{2} = 1$$

$$2x\left(\frac{3X-3}{2}\right) = 1x2$$

$$3X-3 = 2$$

$$3X-3+3 = 2+3$$

$$\frac{3X}{3} = \frac{5}{3}$$

$$X= 5/3$$

855 :

What is the good wirting

1.

Eight hundred and fifty four

2.

Eight hundred and fivety-five

3.

Eight hundred and fifty-five

the differents sentences

there are three sentences and juste one is true.
why?

the first sentence is wrong because that a fault
you have to put "-" between fifty and four and the last number is four

the second sentence is false because 50 is not wirtten like this. 50 is writter fifty.

And the last sentence is true

Another rule of the math

Let my explain a rule of the maths.

"Minus" and "Plus"

Munis times minus equals plus
 - * - = +
Minus times plus equals minus
 - * + = -
Plus times plus equals plus
 + * + = +
now a sentence to learn this rule:

my friend's friend is my friend
 + + = +
my enemy's enemy is my enemy
 - - = +
my friend's enemy is my ennemy
 + - = -

My friend and My enemy

$$(-) * (-) = +$$

$$(-) * (+) = -$$

$$(+) * (+) = +$$

PUT AT THE SAME COMMON DENOMINATOR THEN CALCULATE

To compute this fraction,find a common denominator to both fractions, so here number 4. Then, multiply by 2 the fraction one half at top and bottom. And the sum equals five quarters.

Question N°1 :

$$\frac{3}{4}+\frac{1}{2}=$$

$$\sqrt{81}=9$$

$$\sqrt{49}=7$$

HOW TO FIND 9 AND 7

Square root of 81 equals 9 since 9 times 9 equals 81. Square root of 49 equals 7 since 7 times 7 equals 49.

multiply that fraction nine quarter

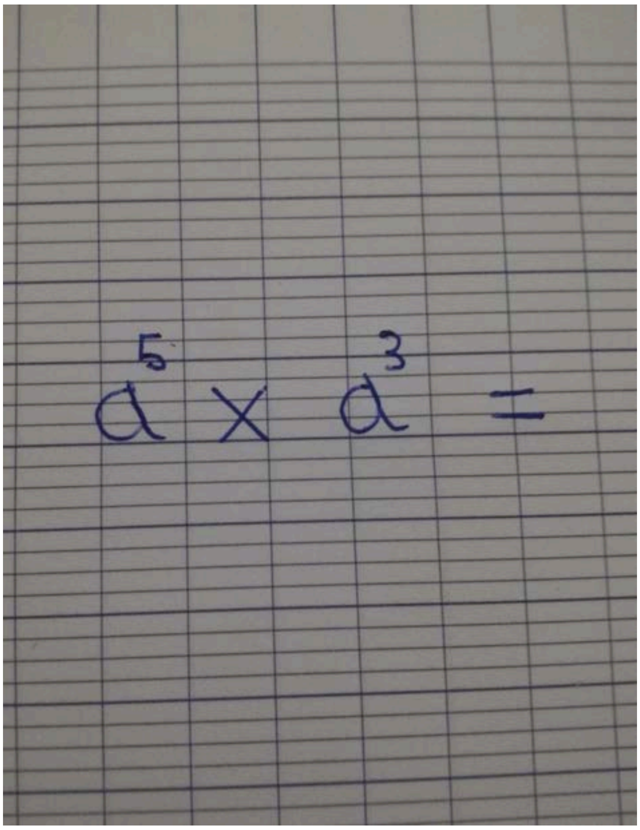
For calculate this fraction, multiply the numerators firstly and the denominators secondly, this gives -45 /48 and -45/48 simplify gives -9/8.

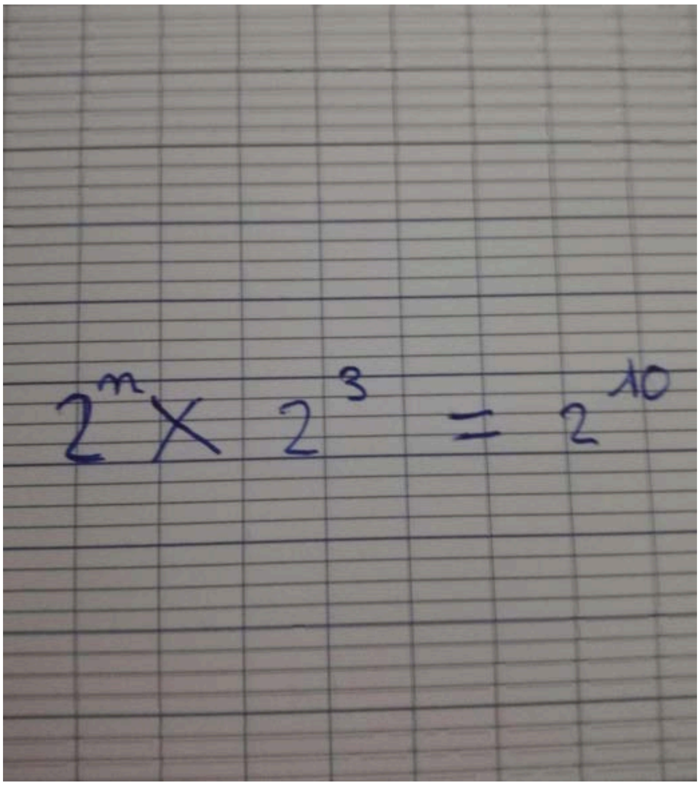
Question N°3 :

$$\frac{-5}{12}\times\frac{9}{4}=$$

Multiplying power of 10

To solve a multiplication of powers of 10just add the two powers of 10, so for this calculation you get 5+3 = 8 so the final result is equal to a^8.



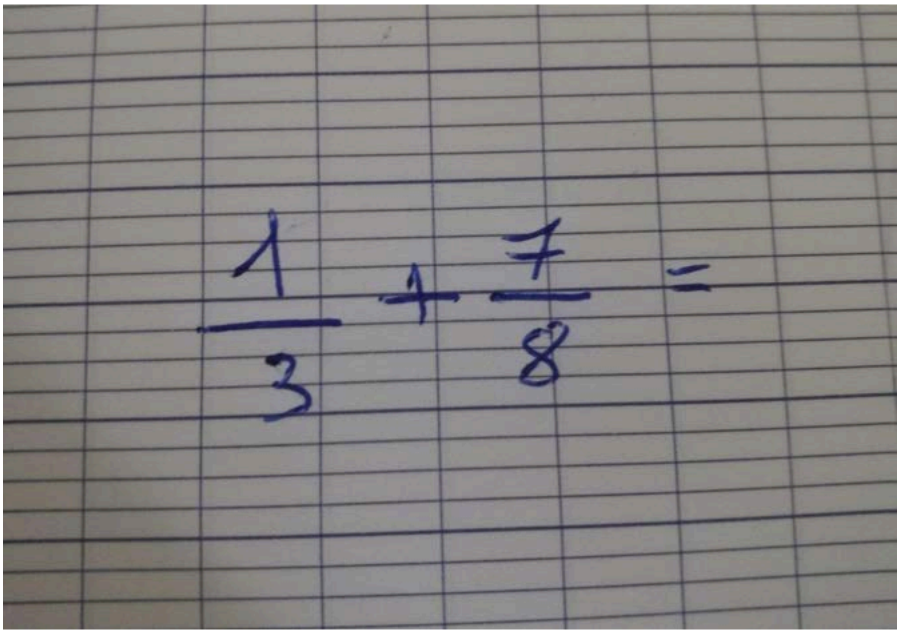


Find the value of n for is statement.

To find the value of n : to multiply two powers of 10 just add the exponents. So 3-10 = 7 so the result is 2^7+2^3 = 2^10

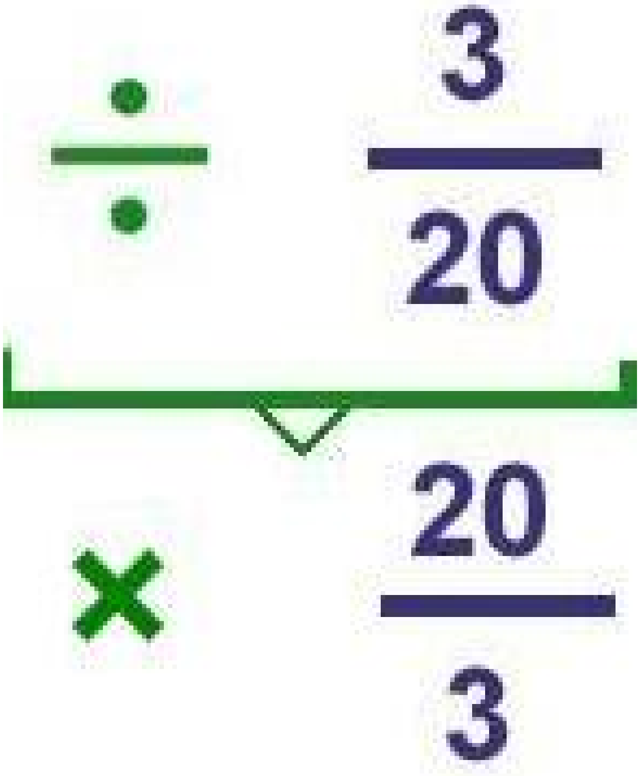
Adding of fractions

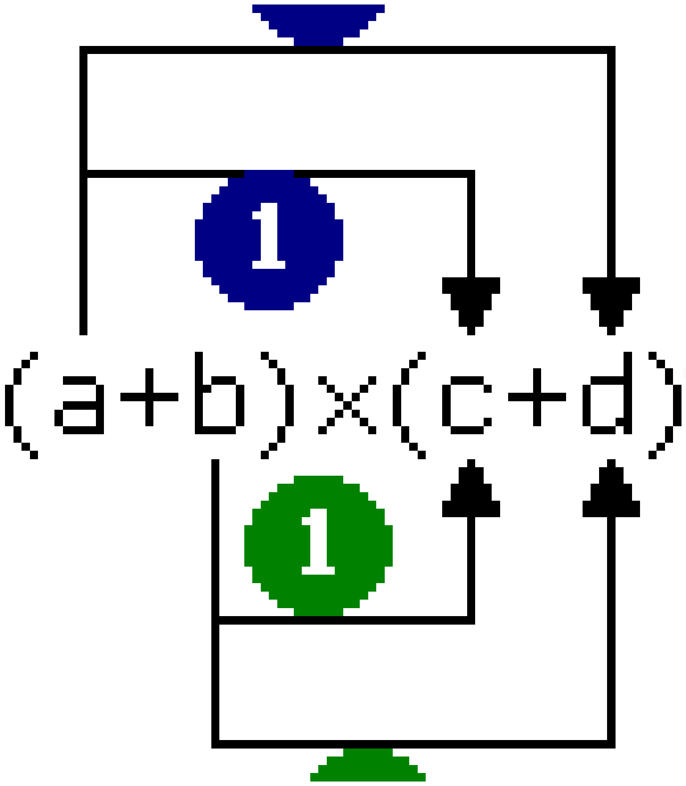
To add fractions it is necessary that the denominators are common in both fractions. To calculate this mulhply 3*8 in the first fraction and 8*3 in the second one. You get 8/24 + 21/24. Now just add the numerators, the result is 29/24.



Fraction Division

(25/5)/(3/2)
First we multiply by its inverse : (25/5)*(2/3)
50/15
Secondly we simplify : (50/5)/(15/5)
10/3
So (25/5)/(3/2) = 10/3



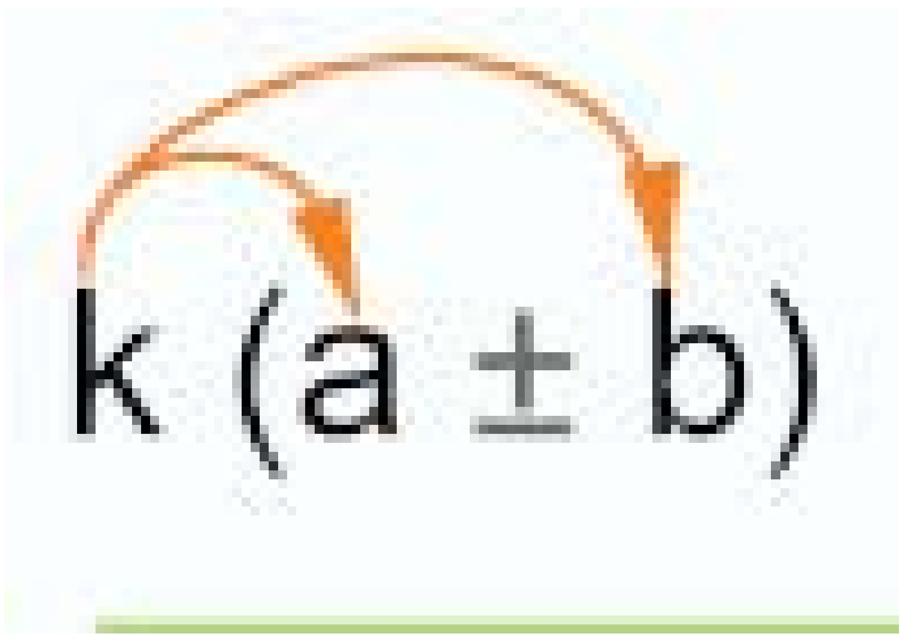


Calculation Development

(2+5)(4-6)
We must develop : (2*4)-(2*6)+(5*4)-(5*6)
8-12+20-30
-14
So (2+5)(4-6) = -14

Calculation Development

7(2+9)
First we develop : (7*2)+(7*9)
14+63
77
So 7(2+9) = 77



Magazine

mon logo

LOREM IPSUM LOREM IPSUM DOLOREM AT CONCEPTUER

N°01 - Septembre 2011

REPORTAGE

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

PORTRAIT

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

BALADE

LOREM IPSUM DOLO REM AT CONCEPTUER ELUS MODUS

LOREM IPSUM

ISPAMCO LUPTAE UNDE QUAED NEQUE PORRO

tribune

Lorem Ipsum?Directeur lorem ipsum at conceptuer

Sed ut perspiciatis unde omnis

Med ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

Sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non nucommodi consequatur? Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt neque porro.

Quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. ed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

Madmagz.com
Le magazine de lorem ipsum doloem ?ipsum at maled
Directeur de la publication : Jean Dupond
rédacteur en chef : Jean Dupont
Rédaction : Jean Dupont, Marie Durand
Mise en page : Jean Dupont.

Adresse : 55 rue Jean Dupont, 75000 paris
tél. : 00 00 00 00 00
www.madmagz.com

contents




02 **LOREM** Les ernim ipsam vo lup tatem quia voluptas

04 **IPSUM** Sit aspernatur aut odit aut fugit, sed quia

06 **DOLOREM** Consequuntur magni dolores eos qui ratione

08 **ERNIM** Les ernim ipsam vo lup tatem quia voluptas

10 **CONSEPTUER** Sit aspernatur aut odit aut fugit, sed quia

14 **DOLORE** Consequuntur magni dolores eos qui ratione

08 **SIT ANIM** Les ernim ipsam vo lup tatem quia voluptas

10 **NUMQUAM** Sit aspernatur aut odit aut fugit, sed quia

14 **BEATE** Consequuntur magni dolores eos qui ratione

The magic Speed of Calculation

Presentation of a magic trick, with a demonstration and all the explication and maths proof

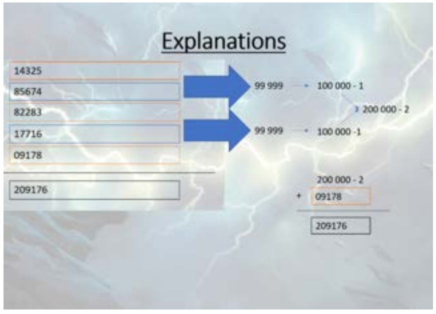
2. How he be so faster

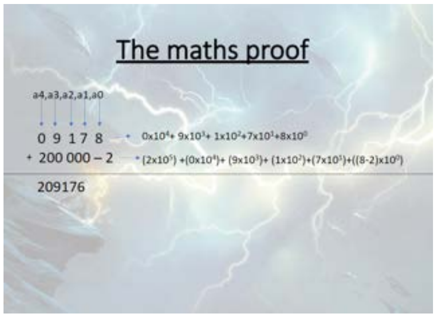
The first and the second numbers of the magician, are chosen to sum up with the first and the second numbers 99 999 (likes the picture). That is likes 100 000 – 1 and the two result add up 200 000-2. It’s now, easier to add. He need just to subtract2 from the fifth digit and put 2 in front of what is left, and he get the result in few second.

The demonstration

3. The Maths Proof

Denote the three numbers chosen by the website : 09178 by : a4 ; a3 ; a2 ; a1 ; a0, and get : 0x10^4 + 9x10^3 + 1x10^2 + 7x10^1 + 8x10^0. And if we add 200 000 – 2 we get a property : 2x10^5 + 0x10^4 + 1x10^2 + 7x10^1 + ((8-2)x10^0)





The Demonstration

The first picture

The magic speed of Calculation trick

A macigian performs a long addition with the random number of the website (In orange) and use his own number (In blue). After the fifth number the magician gives the **sum** (in black) in only a few seconds.

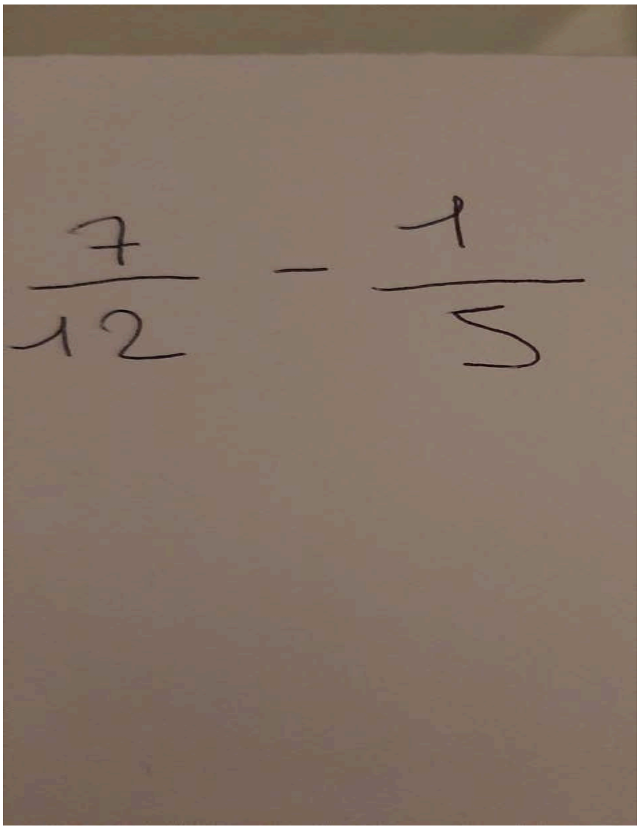
Conclusion

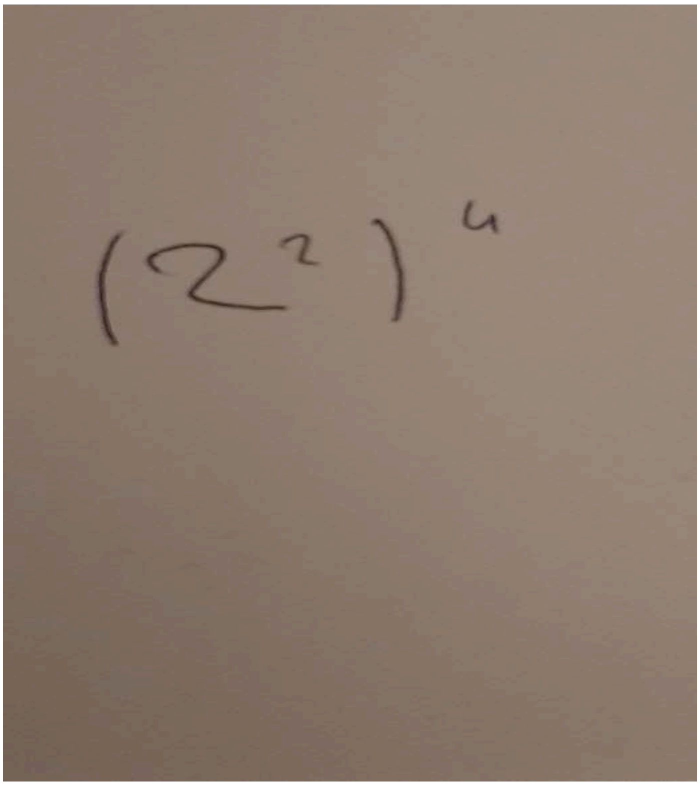
After see a demonstration, the explication and the maths's proof, we can see the magic trick is only a maths 's exercise. And when you know calculate fast you can more impressionate your spectator.

The magic trick is simple when you know the secret and accessible by everyone.
Thanks to have read me !
See you soon in another article

Firstly : fractions

Subtracting fractions 7/12-1/5 is not really difficult. Bring the denominator to the same number and calculate the operation given by numerator.





Secondly : find the answer

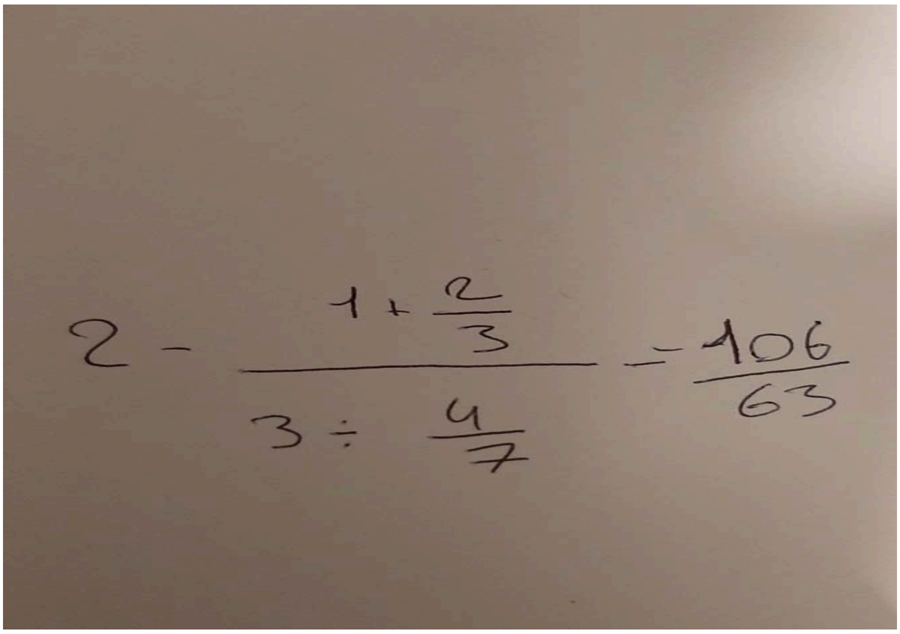
Find the answer is easier than the first calculation. You need to know the rules :
$10^1\times10^1=10^2$
$10^2/10^1=10^1$
So $(2^2)^4$
$2^2\times2^2\times2^2\times2^2=2^8$

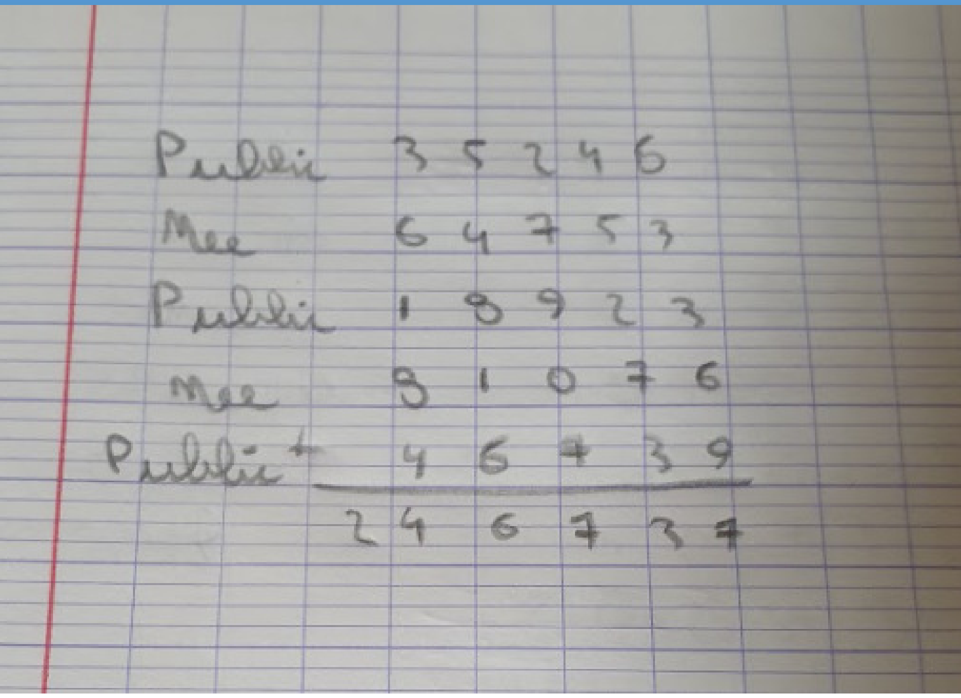
Thirdly : fractions of fractions

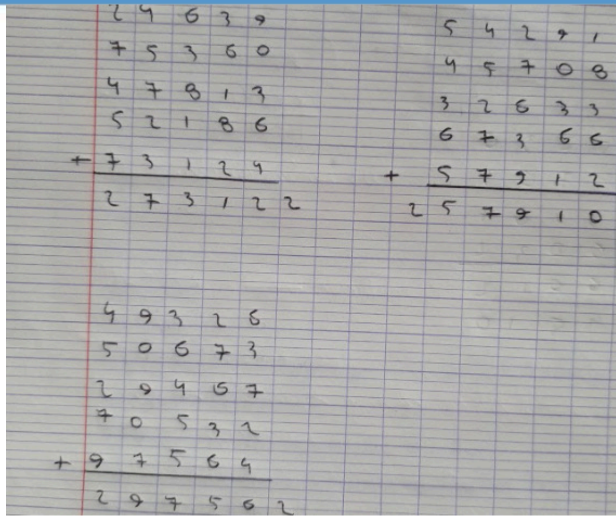
Now it's going to be really difficult.
1+2/3
2- ______
3÷4/7
Convert 1 into the fraction 3/3
Add 3/3+2/3=5/3

Multiply 3 by 7/4 and find 21/4
Multiply 5/3 by 4/21 and find 20/63

Convert 2 in fractions : Finally calculate: 126/63-20/63=106/63







Photos of the additions

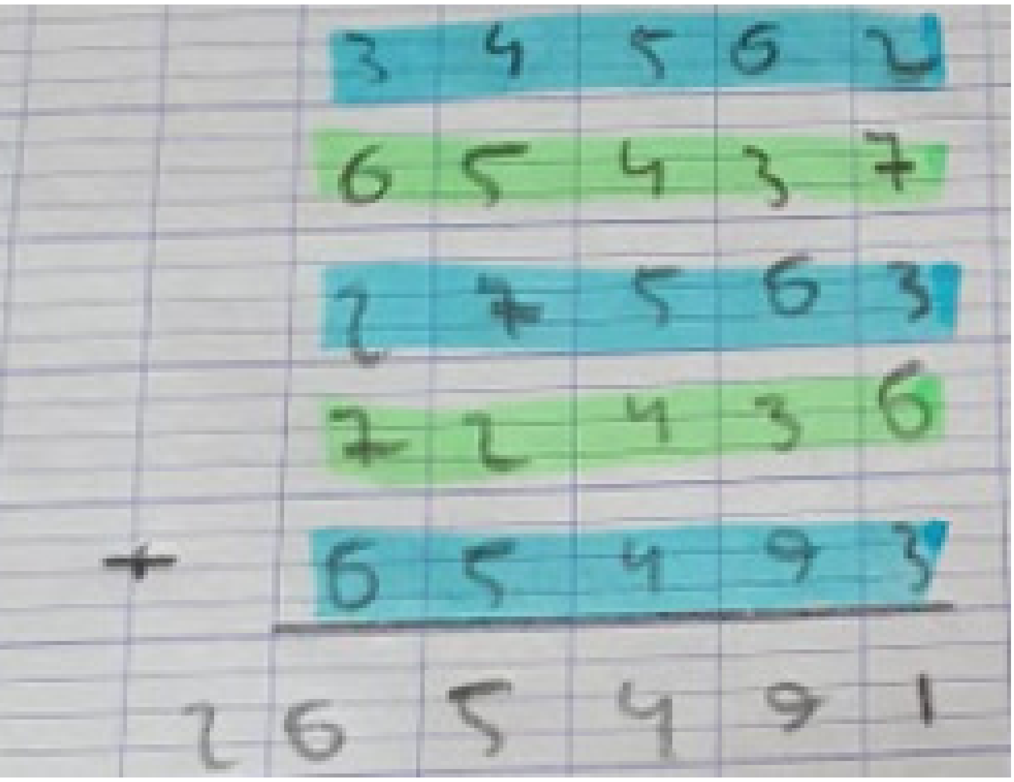
The lightning addition

To perform this magic trick we need 2 people, one person from the audience and a magician, me. The person from the audience has to chooses a number, then I choose my own of number, this action has to be repeated once again, and finally the person from the audience chooses a last one, so that I have chosen only 2 compared to the person from the audience who has chosen 3.We have to add these numbers together, this long calculation should take a long time to solve, but with The Lightning Addition Trick it only takes me a few seconds to do it.

Let’s show you the lightning addition trick, a magic trick to find the solution to a 5 digit addition.

The secret of the Lightning addition trick :

To solve this magic trick add for example the first 2 numbers 99 999 and this twice, if the member of the audience chooses 34 562 then take repeat add 65 437 that gives 99 999 so you have to restart this step with the 2 last additions, for the last one don't to change anything. Once you have done this step copy the last number in the line dedicated to the result by removing 2 from the last number and placing this 2 in front of the operation.



Conclusion : This magic trick is simple and effective for fooling people

We can retain from this experience that in order to fool an audience it is sometimes enough to give to its discourse appearances of complexity, here the fact of manipulating many figures hides very simple additions whose result is known in advance by the magician.

other photos of the additions

37874

62125

58347

41652

78953

256731

LIGHTNING ADDITION

For example:

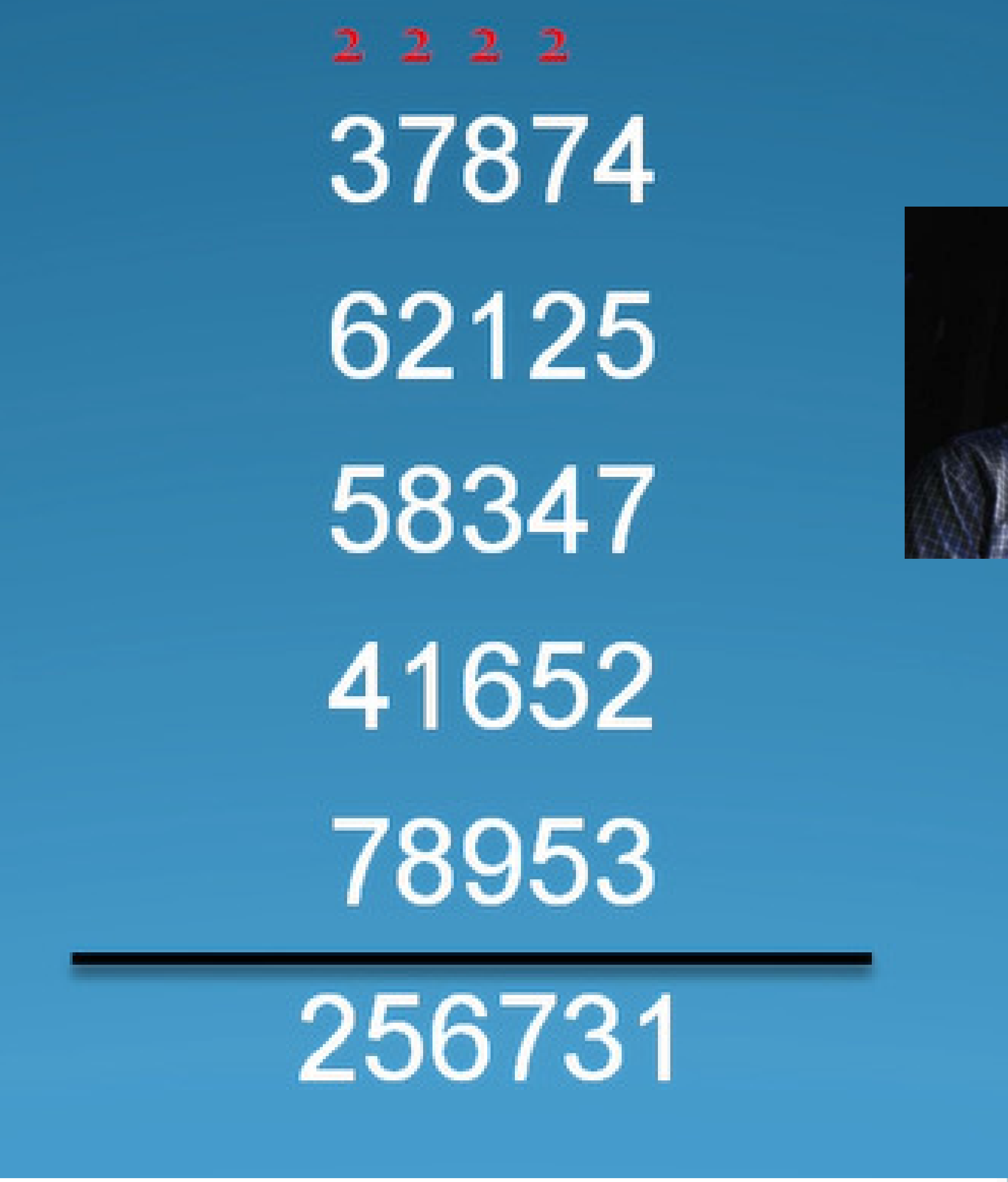
```
   23785
+  76214
+  54321
+  45678
+  14893
  --------
  214891
```

Explication

Let's explain a magic trick.The objective of this trick is simple :
The magician choose a person in the audience who will writes a five-digit number then the magician's look at the third number written by the person we stop wrtiting number and the magician calculate the total in in a short time to impress the audience.
To do this the magician does not write random numbers so that the addition of the first 4 numbers makes 200000-2.

Then the magician just copies the last number by doing -2 that given 256731 digit add give 99999
The secret :
2 add numbers give 99999
2*99.999=199,998
200000-2=199,998
Math proof :
a4=1,a3=4,a2=8,a1=9,a0=3
14893=1*10^4+4*10^3+
8*10^2+9*10^1+3*10^0
200000-2 a4*10^4+a3*10^3+
a2*10^2+a1*10^1+a0=10^0
=2*10^5+a4*10^4+a3*10^3+
a2*10^2+a1*10^1+(a0-2)*3
=2 a4 a3 a2 a1 (a0-2)
that give 214891 with digit

Enzo
STAICU
Mathis
TRAGUET



LIGHTNING ADDITION:

I will explain you a magic trick, the principal is simple: a person must write a five-digit number then in the magician's turn at the third number written by the person we stop writing numbers and the magician must calculate the number in less than 10 seconds.

To do this the magician did not write numbers at random he wrote numbers so that the addition of the first 4 numbers makes 200 000-2. Then we just have to copy the last number by doing -2 that given 256731,2 digit add give 99999.

For example :

```
    23785
+   76214
 +  54321
+   45678
+   14893
    ---------
   214891
```

Enzo STAICU
Mathis TRAGUET

Introduction :

Let's present in this article a magic trick that allows to add numbers at lightning speed. I will first show it, I will explain it to you, then I will prove it mathematically and finally I will conclude by opening to several possibilities of similar magic tricks.

The proof :

The five digit of the fird nomber is denote by a4, a3, a2, a1, a0. In our exemple a4 = 1, a3 = 4, a2 = 8, a1 = 9, a0 = 3.

This new number is also :

14 893 = $1\times10^4+4\times10^3+8\times10^2+9\times10^1+3\times10^0$.

The five numbers add to :

$200{,}000-2+a4\times10^4+a3\times10^3+a2\times10^2+a1\times10^1+a0\times10^0$

$= 2\times10^5+a4\times10^4+a3\times10^3+a2\times10^2+a1\times10^1+(a0-2)\times10^0$

This number is written as 2 a4 a3 a2 a1 (a0-2).

What happens if a0 = 1 or a0 = 0 ?

If we assume that a0 = 1 then a0 -2 = -1 then carry 1 to the next digit. Therefore final result has 9 as right digit and a1-1 for the digit of 10^1. And if we assume that a0 = 0 then a0-2 = -2 then carry 1 to the next digit therefore final result has 8 as right digit and a1-1 for the digit of 10^1.

Perform :

So let's start by performing the magic trick. I ask someone to give a 5 digit random number. He gives the number 81,379 and I mark underneath the number 18,620. I repeat this process again. He gives the number 53,491 and I mark underneath the number 46,508. I ask again for a 5 digit number. He gives the number 42,685. I put down the addition and I find as a result the number 242,683.

The secret :

I will now show you how the magic trick works in general thanks to mathematics. The two pairs of numbers given by the player and the magician add up to 2×99,999 = 199,998. Whatever the player gives for his 2 numbers the result is 199,998 = 200,000

Conclusion :

Finally we can open up this situation several possibilities of similar problems. As for example to do the same operation with numbers with fewer digits. Or else, if the number starts with a number less than 4,such as 3,261, and that we add is a 5 and that 0's behind like here with the number 1,739.

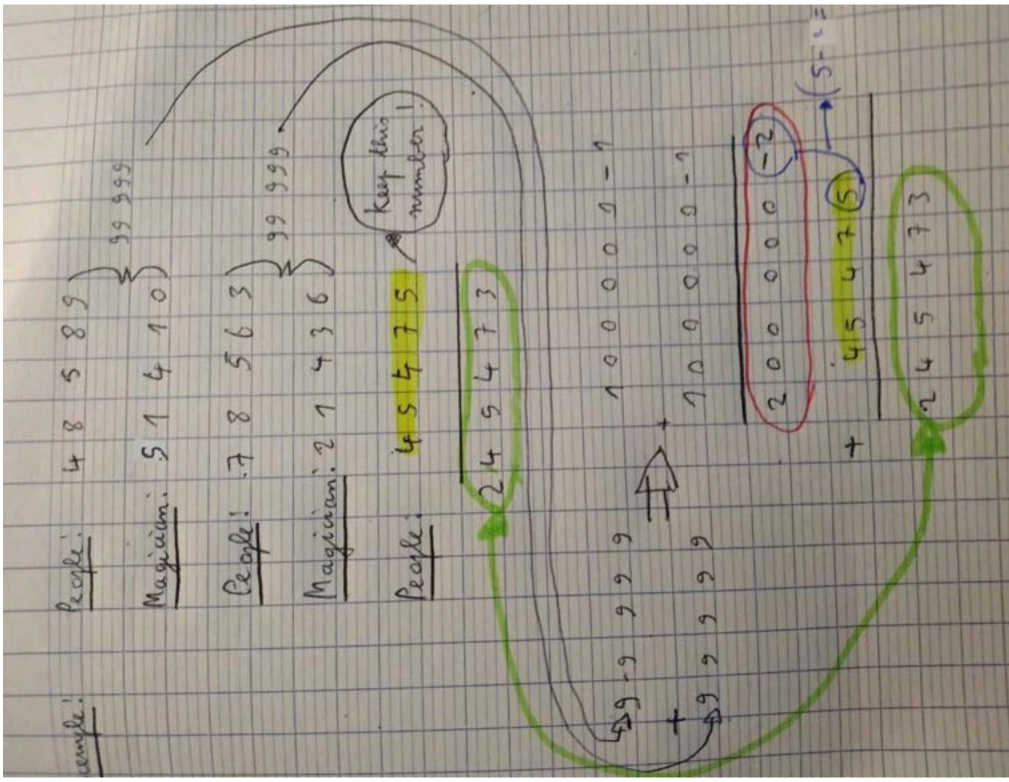
The magic addition

Show how perform addition simply and quickly with a magic trick.

This magic trick is about making a long addition quickly. Firstly, a person chooses 3 numbers composed of 5 digits each. Secondly the magician gives 2 numbers with 5 digits they, there are in total he has 5 numbers. They give their numbers in turn each. The magician chooses the digits he chooses to make +9 with the previous digits when added up. On the other hand, we must keep the last number of the addition.

Then once we have added the fourth numbers so that they make 99,999 twice, we can add it. However, to keep is simple we transform these two numbers into 100,000-1.
Then we add these two modified numbers and we obtain 100 000-1
And finally, we add 200 000-2 with the last number of the calculation of the example which is 45 475 we get 245 473.

r.



The magique trick

Anyone can be lightning-fast calculator if knows the secret of addition tricks. This method of calculation can be calculat to associate the numbers in pairs

One men in the public give three numbers to fifth digits, and the magician give two other numbers.
The magician perform the addition with very fast
How did he that?

The two pairs of numbers given by the magician and by the players add up to : 2×9 999=199 998

Denote the digits of this number :A0,A1,A2,A3,A4,

we called the digit of the example : A4 = 4 A3 = 8 A2 = 7 A1 = 6. A0=5 This new number is also : $4\times10^4+8\times10^3+7\times10^2+6\times10^1+5\times10^0$
To add the fifth number « 48765 » to the magician number equal to 199,999 We can add 10^5 to the fifth number and subtract two from the digit of units.

But what happened if A0=1 or A0=0 ?

Assume A0=1 then A0-2=-1.
So we carry 10^1 to the next digit (A1) when $10^1+1-2=9$

Assume A0=0 then A0-2=-2
So we carry 1 to the next digit(A1) When $10^1-2=8$

45623
+54376
+57997
+42102
+48765
248763

45623
+54376
+57997
+42102
+48761
248759

45623
+54376
+57997
+42102
+48761
248750

It's now time to conclude!

Today we got to see how to perform a magic trick with simple numbers. Hope you enjoyed this tour. Now it's your turn to impress your friends and even family members Have a good day ! and goodbye !

Magic TRICK

Today i present you a magic trick. This magic trick is simple : The magician can find number. For make this magic trick you take one number with five digit and the magician can calculate the number in less than 5 second.

Lightning addition :

12345

+ 98765

+ 98745

+ 12365

+ 78954

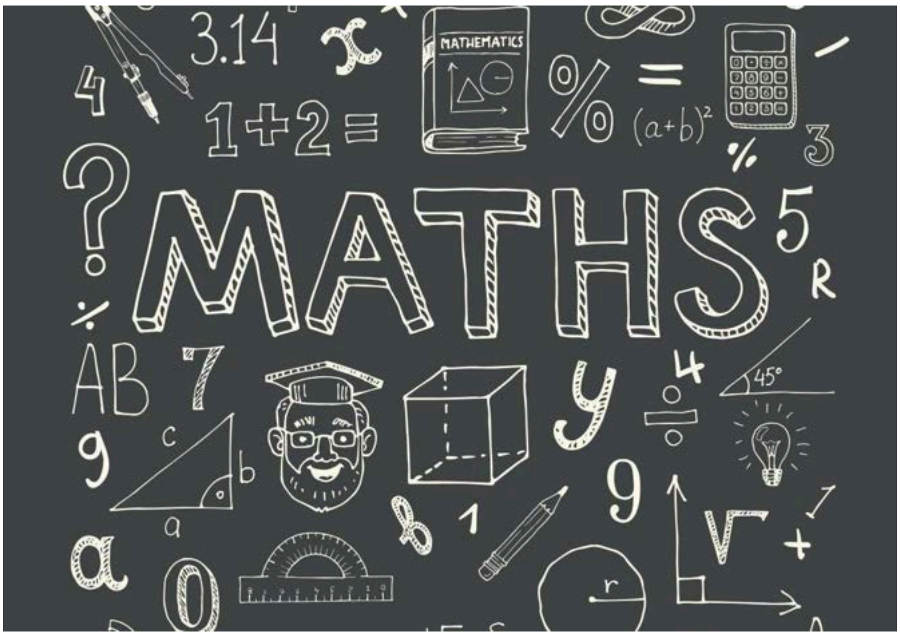
278952

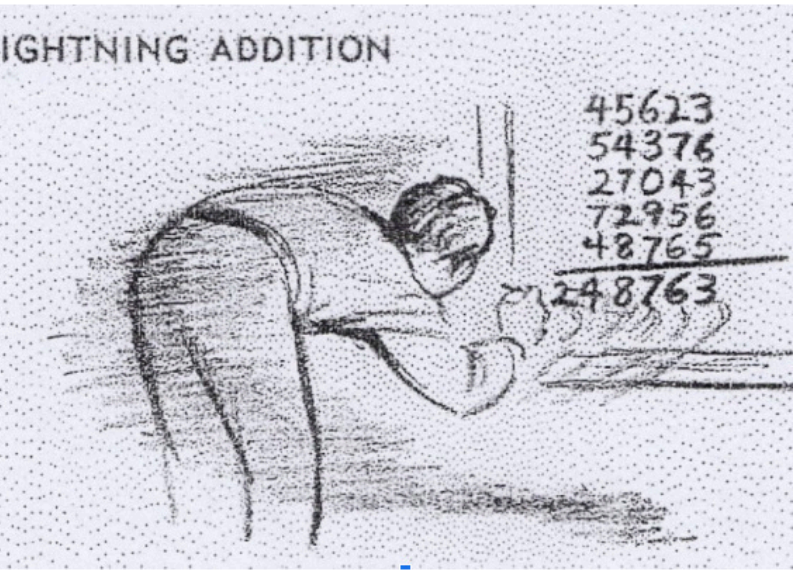
Make this magic trick

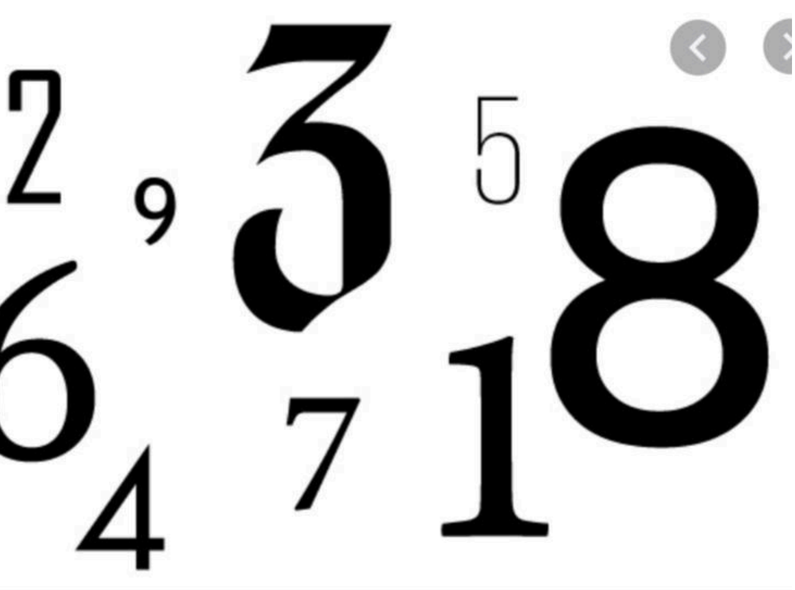
To make this magic trick you take a friend, a familly member or a random people and you tell him to give a number in less 5 digits and the magician add an another numbre with 5 digits and the friend tell an another number and for finish the magician can find the final number.

Math improve

The two pairs of numbers given by the player and the magician add up to, 2x99,999=199,998.
Whatever the player as two new numbers
199,998=200,000-2.Let's denote by : a4 ; a3 ; a2 ; a1 ; a0.
200,000-2 = a4 x10^4 + a3 x10^3+a2x10^2+a1x10^1+a0x10^0. Which is written as 2 a4 a3 a2 a1 (a0-2).
This prof as not always work because the last digit finish by 0.







Hello everyone, welcome to « The fastest Operations ». I will present you my new magic trick. This magic trick is to add five digit numbers in one second.

To start I will ask you to choose a number of five digits. or exemple, you will choose 23 785. Then i will choose a number : 76 214. Do this twice. And finally you will choose the fifth and the last number. So we get : 23 785 76 214 54 321 45 678 14 893 214 891 So now i will explain how i found the result in one second without making the traditionnel addition. The last number chosen is very important in determining the final result because it contain four digits of the result. So the 1, 4, 8 ; 9 does not change and to find the digit of units and hundreds of thousands.

So now i will explain how i found the result in one second without making the traditionnel addition. The last number chosen is very important in determining the final result because it contain four digits of the result. So the 1, 4, 8 ; 9 does not change and to find the digit of units and hundreds of thousands.

It is necessary, we have to decompose the three which is the sum of 2+1. There is a seconde method to find the result in few second. 23 785 + 76 214 = 99 999 = 100 000 - 1 54 321 + 45 678 = 99 999 = 100 000 – 1 200 000 – 2 + 14 893 = 214 891 We get well 214 891. To prove yourself mathematically, i will use A which replaces the number.

A4 = 1 ; A3 = 4 ; A2 = 8 ; A1 = 9 ; A0 = 3 (200 000 – 2) + a_4x 〖10〗^4 + a_3x 〖10〗^3+ a_2x 〖10〗^2 + a_1x 〖10〗^1+ a_0x 〖10〗^0 = 2x 〖10〗^5+ 1x 〖10〗^4 + 4x 〖10〗^3 + 8x 〖10〗^2 + 9x 〖10〗^1 + 3x 〖10〗^0 .

Thanks for read my article. I hope this article be nice for you.

The Magic Operation

How do you do calculate numbers easly to left to right ?

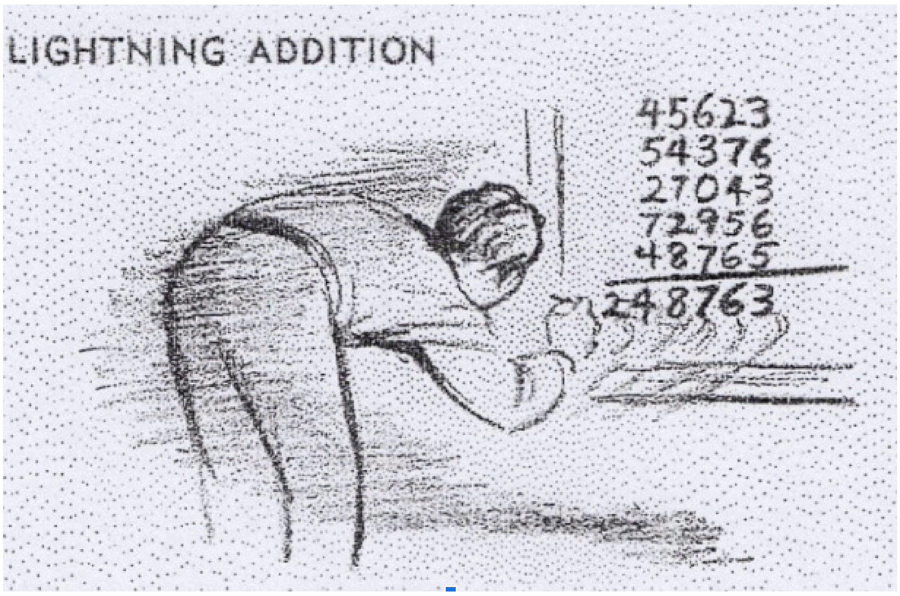
This operation involves asking someone to say a five-digit number and write it on a blackboard. After these numbers are written you need to write one also below, repeat the action until there are 5 numbers below each other. Now you have to add all these numbers and write the result from left to right, but how do you do that ? Let's take an example: the person in front of me chose the number 75211 i decide to take 24788 his next number is 36529 i take 63470 his last number is 18094 so :

75211
+ 24788
+ 36529
+ 63470
+ 18094

218092

I managed to find the result so quickly because I didn't really choose my numbers at random, I made the digits that we add to hers make 9, for example with

75211 + 24788



"from the course sheet".

The result of each digit is 9. Thanks to that when we look at the fifth number we just have to add 2 in front of the number and to subtract 2 from the last digit, which gives us the right result.
For this technique to work with all numbers, you must know that the two pairs of numbers given by the player and the magician add up to :

2 x 99 999=998 whatever the player gives for his two new numbers is 199 998 = 200 000 - 2

Conclusion

We can say that this method is practical and fast but it can only be used in special cases, it is therefore difficult to use.

we will use this example calculation :

23785
+ 76214
+ 54321
+ 45678
+ 14893

214893

Let's denote by
a4, a3, a2, a1, a0 the 5 digits of the third number given by the player In our example

a4 = 1, a3 = 4, a2 = 8, a1 = 9, a0 = 3 this new number is also

14 893 = 1x 10^4 +4 x 10^3 + 8 x 10^2 + 9 x 10^1 + 3 x 10^0

the five numbers add up to
200 000 - 2 + a4 x 10^4 + a3 x 10^3 + a2 x 10^2 + a1 x 10^1 + a0 x 10^0
= 2 x 10^5 + a4 x 10^4 + a3 x 10^3 + a2 x 10^2 + a1 x 10^1 + (a0 - 2)

what happens if a0 = 1 or a0 = 0 ?

Assume a0 = 1 then a0 - 2 = -1
then carry 1 to the next digit therefore final result has 9 as unit digit and a1 - 1 for the digit of 10^1

42156
57843
86512
13512
52136
252134

Lightning addition :

Let's show now a ma gic trick, the principle is simple : a person must write a five-digit number then in the magician's turn at the third number written by the person we stop writing numbers and the magician must calculate the number in less than 5 seconds.
To do this the magician did not write numbers at random he wrote numbers so that the addition of the first 4 numbers makes 200,000-2
Then we just have to copy the last number by doing -2

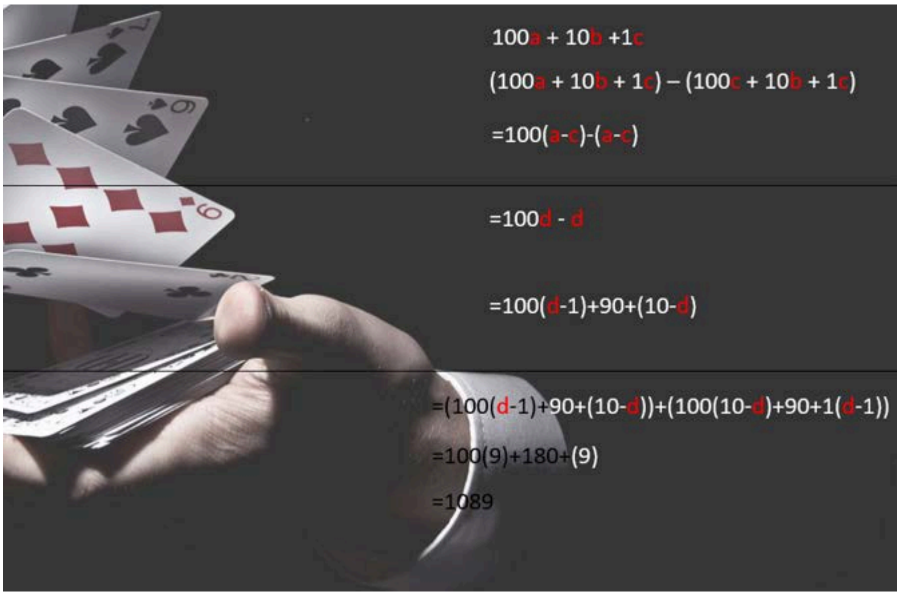
The math proof :
a4a3a2a1a0
The five digits of the third number given by the player
In our example :
a5=1,a3=2,a2=1,a1=3,a0=6
this new number is also
52,136=5x10^4+2x10^3+1x10^2+3x10^1+6x10^0
The 5 numbers add up to :
200,000-2+a4x10^4+a3x10^3+a2x10^2+a1x10^1+a0x10^0

Source image : google image

Result 1089 with every number !

Hello, my name is Keryan HOUSSIN, let’s show you the magic trick called 1089, wherre I can find 1089 with every three digit number.

In this explications, we use three variable a, b and c likes that : 100a + 10b + 1c Now likes in the demonstration, I reverse the number and subtract to the first : (100a + 10b + 1c) – (100c + 10b + 1c) After, we can simplify all this in : (100a + 10b + c)-(100c + 10b+a) 100a + 10b +c -100c -10b-a 100(a-c)-(-c+a) 100(a-c)-(a-c) After this result let me introduce a new variable, we can denote (a-c) by d and get that : 100d-d And again we can rearrange to simplify : 100(d-1)+90+(10-d) = 100d-100+90 + 10 – d 100d-d is a three digit number Now we can add, and reverse : = (100(d-1)+90+(10-d))+(100(10-d)+90+1(d-1)) = 100(9)+180+(9) = 1089 So we get 1089, and this equation is a proof, than the magic trick works



The formule in the video.

Exceptions :

When I says the trick work with every number it was a lie. Ten percent of the number with three digit don’t work. All the number with the same digit at the beginning and at the end likes 353, don’t work. So if you want to reproduce the magic trick, and a spectator give you a number likes that, the magic trick is failed and you really don’t have luck.

The demonstration by Keryan HOUSSIN.

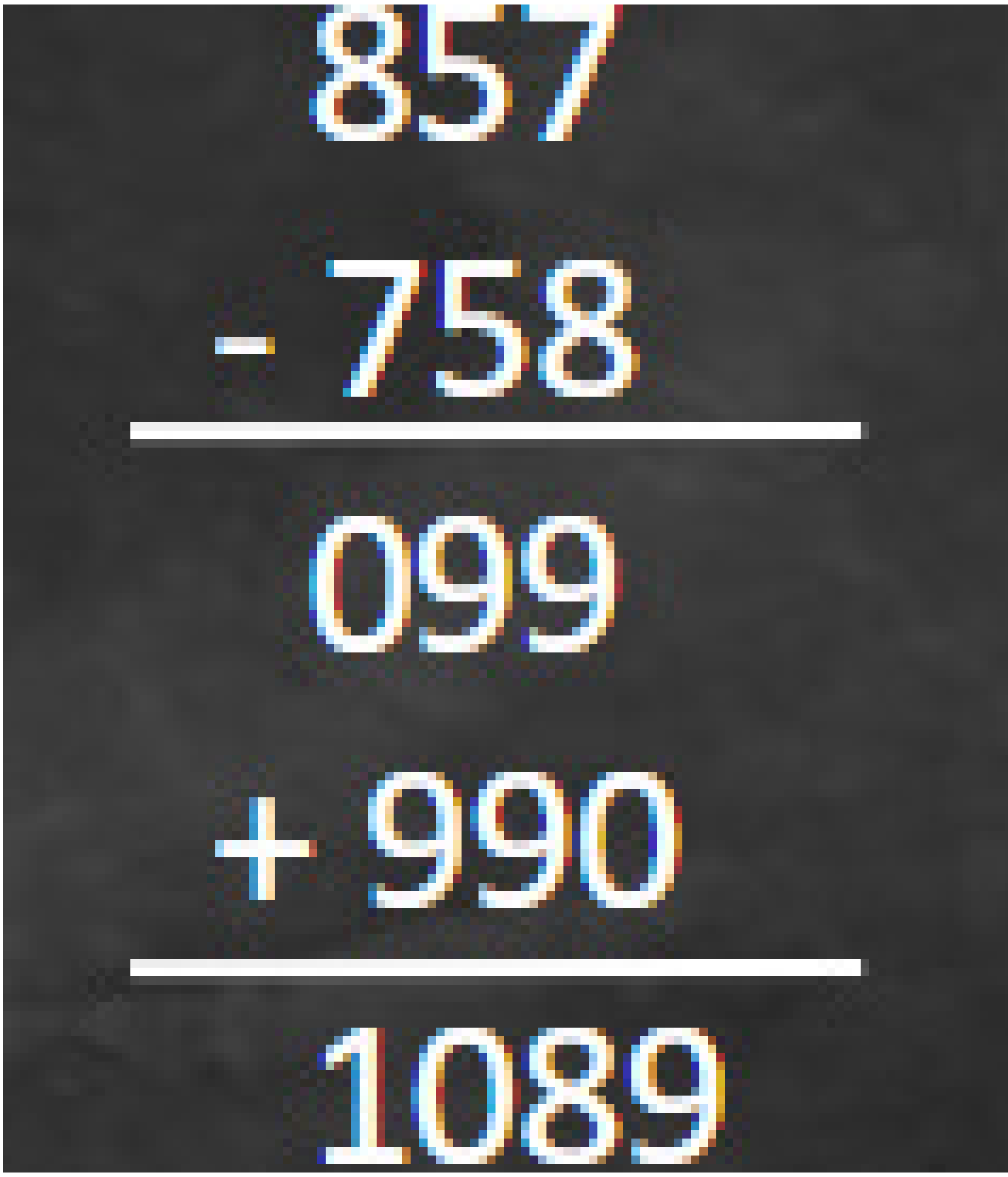
Actors	+/-	Numbers
Random.org		841
Me	-	148
Result		693
Me	+	396
Result		1089

Tip

What is random.org

The website can choose, for free, a random between your limit. It's a proof, than you not cheating, if you are alone, and it is extrêmely easy to use.

100a + 10b + c Reverse and subtract (100a + 10b + c) - (100c + 10b + a) =100 (a-c) - (a-c) Denote by d the number (a-c)(100a + 10 b + c)
-
(100c + 10b + a) =100d – d 100d – d =100d – 100 + 90 + 10 – d =100(d – 1) + 90 + (10 – d)(100 (d – 1) + 90 + (10 –d)) + (100 (d - 1) + 90 +1 (d – 1) =100 (9) + 180 (9) =1089



The Migik Trick 1089.

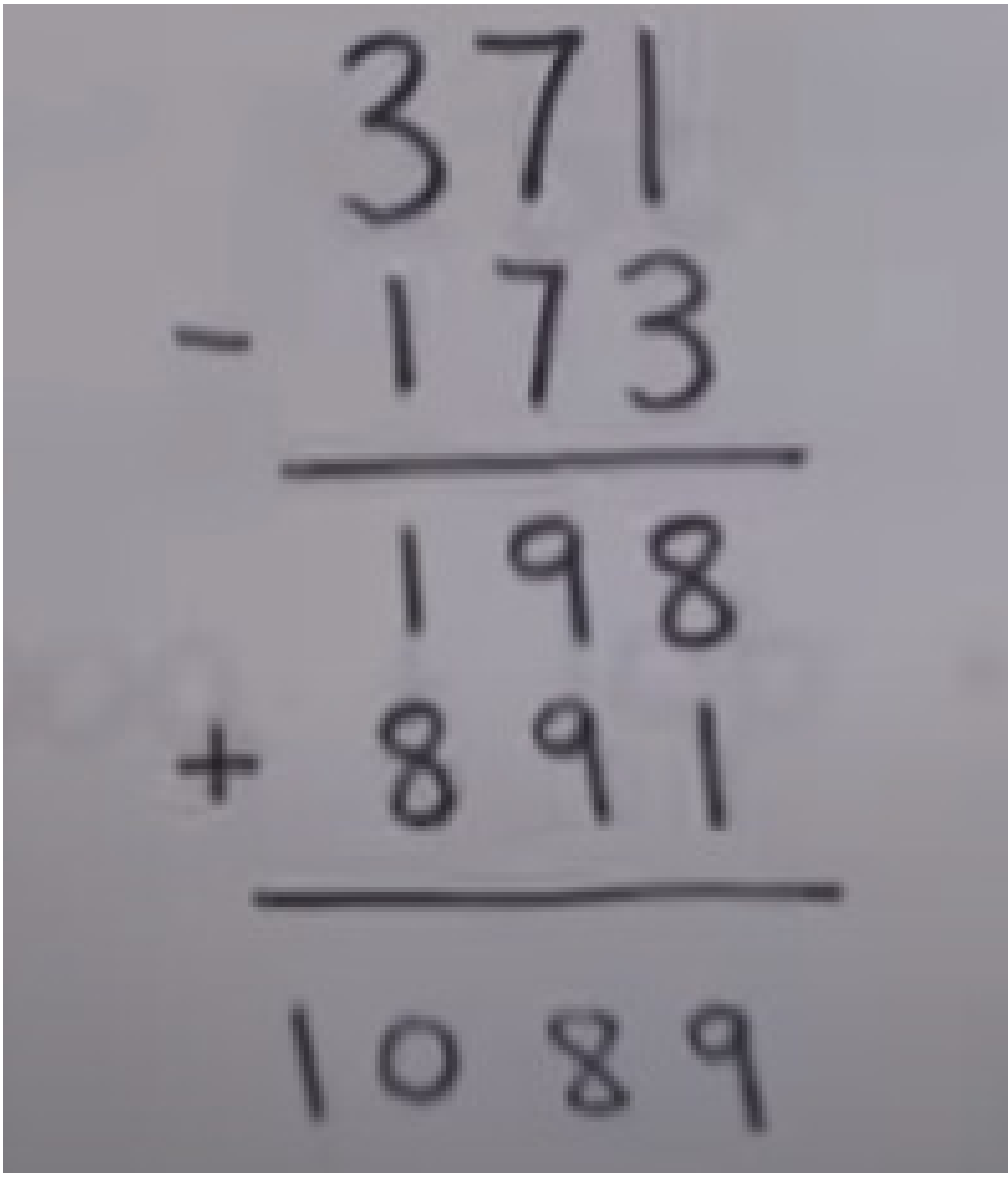
The magic trick is to find the number 1089 each time. To do this you have to choose a 3-digit number which does not have the same digit twice in the number. When you have your number you can reverse the number and subtrcrat the two number.

The result of the subtraction you reverse once again and you add the result of the subraction and the reverse of the result and you obtein the number 1089.

Explanation of the 1089 magic trick

For example:

```
     343
-    343
   -------
     000
+    000
   -------
    0000
```



The 1089 magic Trick

To start one person give a number to the magician like 371 and the mafician inverse this number and do that again with the result and that give sometimes 1089 that not alwys work you can see that in the example on the left

The math proof:
(100a+10b+c)-(100c-10b+a)
=100d-d
=100d (-100+90+10)-d (=0)
=100(d-1)+90+(10-d)
(100(d-1)+90+(10-d))+(100(1
0-d)+90+1(d-1)
=100d-100+90+10-d+100-100
d+90+d-1
=100+90+10+1000+90-1

and that give 1089

The 1089 trick

This operation consists of subtracting the inverse of numbers and adding the inverse of the result to always find the same number at the end which is 1089.

Take a exemple : A person in front of me decides to take the number 371, I decide to subtract it by 173 which gives us 198. So I can add it by 891 and find 1089.

$$\begin{array}{r} 371 \\ -\ 173 \\ \hline 198 \\ +\ 891 \\ \hline 1089 \end{array}$$

Now let's try to see if this technique works with other numbers, we'll take 763, 268 and 525.

$$\begin{array}{r} 763 \\ -\ 367 \\ \hline 396 \\ +\ 693 \\ \hline 1089 \end{array}$$

$$\begin{array}{r} 268 \\ -\ 862 \\ \hline -\ 594 \\ +\ 495 \\ \hline -\ 99 \end{array}$$

$$\begin{array}{r} 525 \\ -\ 525 \\ \hline 0 \\ +\ 0 \\ \hline 0 \end{array}$$

We can see that this trick doesn't work with all numbers, let's take the very first example from the video again and try to figure out how we found this result. To be sure to find 1089, all digits in the first number must be different. The first digit must also be greater than the last digit, here it is because in 371, 3 is much greater than 1. It is a necessary step so that the subtraction of the reverse is not a negative result. If the result is negative we will not be able to find 1089. After finding the result, we have to take its inverse but instead of subtracting it, we have to add it. In this example we therefore add 198 to 891. If this technique is done correctly we find 1089, it is the case here.

Now the question is: Why do we find this result in some cases?

Take ABC, A is hundreds, B is tens and C is units

Let's look at this table, it sums up everything I could say previously :

	Hundreds	Tens	Unit
	A	B	C
Substract :	C	B	A
	A - C	0	C - A

We must now subtract 1 Hundred, and add 9 Tens and 10 Ones (−100, +90, +10 = 0, so won't change answer):

	Hundreds	Tens	Unit
	A - 1	B + 9	C + 10
Substract :	C	B	A
	A - 1 - C	9	10 + C - A

We just have to reverse the answer and add the two numbers together.

	Hundreds	Tens	Unit
	A - 1 - C	9	10 + C - A
Add :	10 + C - A	9	A - 1 - C
	9	18	9
Simplify :	10	8	9

As predicted the answer was 1089

We can therefore conclude that this technique is impractical because it takes precise numbers to find the right result.

.

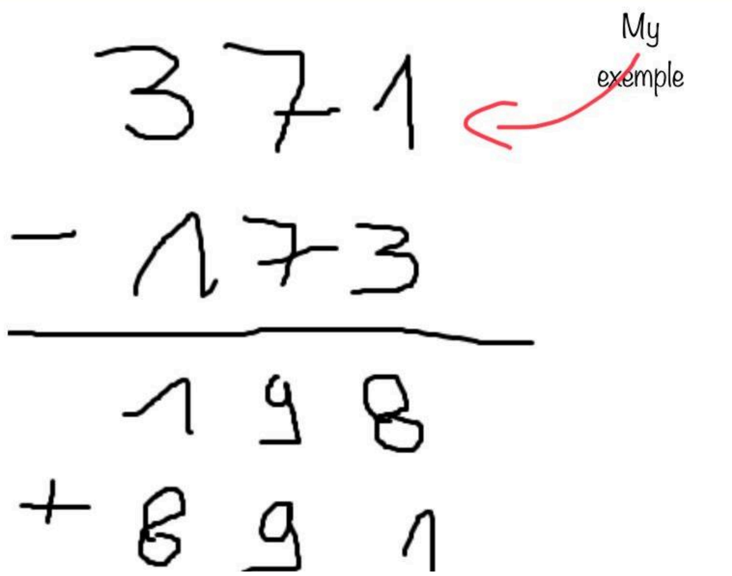
the magic trick 1089

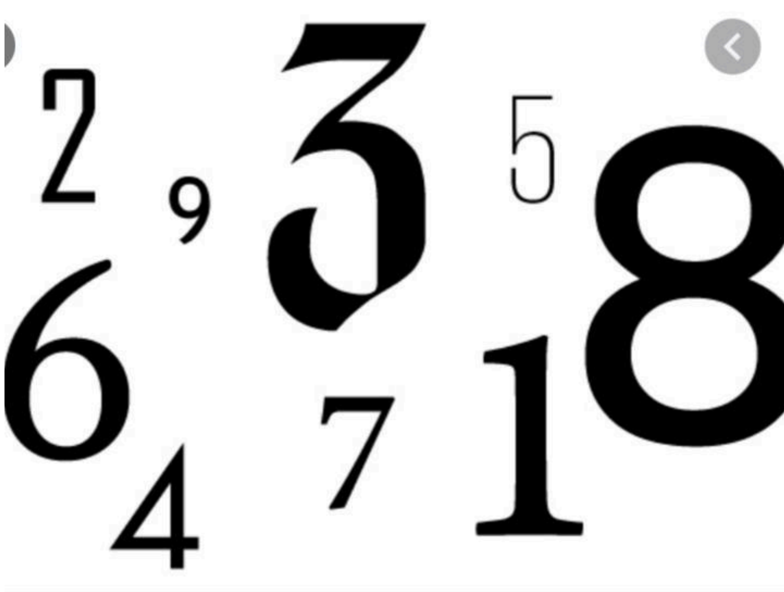
683I would like to present you a magic trick based on numbers. More precisely on 1089. First to do such a magic trick we have to choose a number between one hundred and one thousand. firstly a demonstration.
A b c 100 a + 10 b + 1 c
(100a+10b+c)-(100c+10b+a) =100(a-c)-(a-c) =(100a+10b+c)-(100c+10b+c) =100a+10b++c-100c-10b-a =100(a-c)+(c-a) =100(a-c)-(-c+a) =100(a – c – a - c) Denote by d the number a – c
Reverse subtract =(100a+10b+c) – (100c+10b+a) =100 d-d A c d 1
Rearrange 100d-d =100d-100+90+10-d = 0 =100(d-1)+90+(10-d) =100 d-d Is a 3 diget number now Never,add
(100a(d-1)+90+(10-d))+(100(10-d)+90+1(d-1))
100d-100+90+10-d+1000-100d+90+d-1
=-100+90+10+1000+90-1=1089

Secondly Let’s take an example for this magic trick.
683
-386
equal
297
+793
equal
1089

Thirdly The magic trick works at 90 percent because if we choose a number in which the digit of hundreds is the same as the unit when we reverse and substract. It gives a zero. In conclusion for the magic magic trick we need a number between one hundred and one thousand. Then we apply the demonstration and as a result it gives the number 1089.nevertheless the magic trick works at 90 percent. There are a lot of magic tricks with a number sutch as Danemark and Kiwi.

magic Tricks 1089





Hello everyone, I present you my new magic tricks. For this tour you just have to choose a number between 100 and 999 For exemple : 371 We can subtract the first number for inverse. Then the result that we obtained by doing the subtraction, we must add it by its inverse. In the case where we have 2 same digits in the same number then the turn is impossible because we get 0. If we find a positive number, the result will be the same only will be -1089.

The prouve : 371= 3x100 + 7x10 +1x1 -235= 2x100 + 3x10 + 5x1 Divised by 532- 235 = 100(5-2) + 0+ 1 (2-5) The mathematics prouve : (100a+10b+c)-(100c+10b+a) =100(a-c)-(a-c) =(100a+10b+c)-(100c+10b+c) =100a+10b++c-100c-10b-a =100(a-c)+(c-a) =100(a-c)-(-c+a) =100(a – c – a - c) Denote by d the number a – c Reverse subtract =(100a+10b+c) – (100c+10b+a) =100 d-d A c d 1 Rearrange 100d-d =100d-100+90+10-d= 0

=100(d-1)+90+(10-d) =100 d-d Is a 3 diget number now Reverse,add (100a(d-1)+90+(10-d))+(100(10-d)+90+1(d-1)) 100d-100+90+10-d+1000-100d+ 90+d-1

Thanks to read my article. See you soon for a new Magic Tricks

698

198

+

891

1089

The magic trick of 1089

The goal of this magic trick is to find the result 1089 by doing two operations in a row. Moreover, all the people with whom you will do this magic trick will be blown away. To perform this magic trick, you will first have to ask the chosen person for a number. After having written the number chosen by the person you will also have to write a number. Then you will add the bill and then pose a second addition. the result of this second operation is bound to be 1089. however, there are exceptions as this magic trick does not work with all numbers.

I have performed this magic trick with a person. I asked this person to give me a three-digit numbers. The number chosen was 896. Then it was my turn to write a three-digit number. I chose 698. Then, I subtracted these two numbers and got another three-digit number, 198. I then took the number 198 and added it to the number 891, which I also chose. the sum of these two three-digit number is 1089, as it was expected in this magic trick. I reproduced the 1089 magic trick many times and I got the result 1089 several times. this proves that even if the magic trick does not work every time, it is still effective.

tur.

-594

-495

-1089

As we can see in the example above, the whole calculation is composed of two operations who are here, (896 - 698) and (198 + 891). So, we notice that in these two operations, the magician chooses the reverse number of the one chosen by the person. it transforms the hundreds digit into a unit digit and the unit digit into a hundred digit. as I explained previously the magician obtains then the result of the subtraction which is also a three-digit numbers. After, he reproduces the same technique he used before, he replaces the hundreds and units digit of the result of the subtraction. the magician thus obtains a second number which he adds to the result of the first subtraction. finally, the final result obtained is 1089.

100a + 10b + c The magic trick of 1089 has rules. First, this magic trick only works with three-digit numbers secondly the result of the first subtraction must be positive moreover, the three digits of the three-digit number must not be the same. show in general that the first subtraction from as a result a positive three-digit numbers. With a > c and d ≥ 1:

Reverse and substract
(100a + 10b + c) – (100c + 10b + a) = 100a +10b +c – 100c – 10b – a = 100 (a – c) + (c – a) = 100 (a – c) - (-c + a) = 100 (a – c) - (a – c)

The math proof

Let’s take the example of: 532 – 235 532 – 235 = (5 x 100 – 2 x 100) + (3 x 10 – 3 x 10) + (2 x 1 – 5 x 1) = 100 (5 – 2) + 0 + 1(2 - 5) = 100 (5 – 2) – (5 – 2)

Now, prove that the addition is always equal to 1089: (100a + 10b + c) – (100c + 10b + a) = 100d – d 100d – d is also a three digits numbers Reverse and add 100 (d – 1) + 90 + (10 – d) + 100 (10 – d) + 90 + 1 (d – 1) = 100d – 100 + 90 + 10 – d + 1000 – 100d + 90 + d – 1 = -100 + 90 + 10 + 1000 + 90 – 1 = 1089

My personal comment: I found this magic trick interesting, too bad it doesn't work in any case. an idea that might be fun to realize would be to demonstrate that this magic trick also works in the case of a negative result obtained during the first subtraction. To illustrate this we could take this example:

1089 and all that

In this magazine, I will present you a magic trick that results in 1089 Firstly I'm going to do it with 3 different numbers, Then I'm going to explain it to you and show yousomethingelse about this trick. I will then give you the mathematical proof And finally I'm going to give you a demonstration.

The proof

I will now show you how the magic trick works in general thanks to mathematics.
We consider the number abc of which it has 100xa+10xb+1xc
We start by doing a subtraction with the inverted number :
(100a+10b+c)-(100c+10b+a)
=100d-d
We consider that (a-c)=d if a is greater than c and d is greater than 1
We rearrange it :
=100d-100+90+10-d
=100(d-1) +90+ (10-d)
And finally we make an addition with the inverted number
(100(d-1)+90+(10-d))+(100(10-d)+90+(d-1)

=100d-100+90+10-d+1000-100d+90+d-1

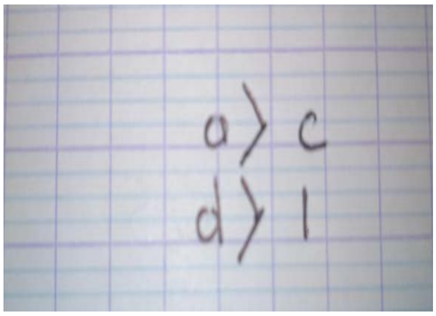
=-100+90+10+1000+90-1
= 1089
I ask is operations and the result is 1089 after simplifying it .

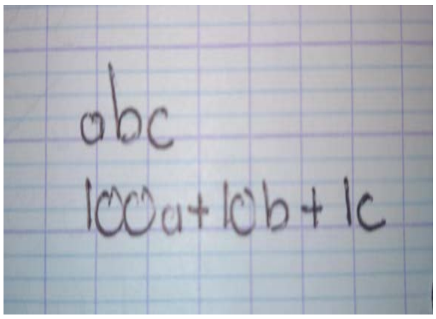
The perform

So I'm going to start by doing the magic trick.
I take the number 763
I subtract 367
Which is equal to 396
And then I add 693
This results in 1089

I then take the number 268
I subtract 862
Which is equal to -594
Then I add -495
This results in -1089

Finally I take the number 525
I subtract 525
Which is equal to 0





The secret an explain

So I'll explain this magic trick
The seemingly random numbers I wrote are the

same numbers With only the hundreds and units exchanged. I repeat this operation twice at the beginning with the subtraction and then with the addition.

Conclusion

I will now show it to you by taking a random number.
100 the hundreds are greater than the units so the result will be 1089.
I'll show it to you I subtract 1
Which is equal to 099
I exchanged the hundreds and units
So I add 990
This results is 1089

Then I will show you that I can know the final result.
I just have to look at the number of units and hundreds.
If the units are larger than the hundreds the result will be -1089.
Then if the units are smaller than the hundreds the result will be 1089
Finally, if the units are equal to the hundreds the result will be 0.

Leo Brecville 19/01/2021

How to calculate faster than a calculator

How to make maths more fun :

Let's take 3 examples.

Exemple 1
Step 1: Let us take 742.
Step 2: Let us reverse the digits making the number 247.
Step 3: Subtract the numbers: 742– 247= 495.
Step 4: Reverse the digits of the number in Step 3: 594.
Step 5: Add the numbers in Step 3 and 4: 495+ 594= 1089.

The results in the three examples was always 1089. What Really Happened Before we discuss why the math trick works, let us observe what happened when we subtracted the digits of the numbers in step 3. Take note of these observations because they are the keys to the proof why the math trick works. Observation 1 The condition states the digits of the number chosen in Step 1 is decreasing.

Example 2
Step 1: Let us take 742.
Step 2: Let us reverse the digits making the number 247.
Step 3: Subtract the numbers: 742 – 247 = 495.
Step 4: Reverse the digits of the number in Step 3: 594.
Step 5: Add the numbers in Step 3 and 4: 495 + 594 = 1089.

Example 3
Step 1: Let us take 692.
Step 2: Let us reverse the digits making the number 296.
Step 3: Subtract the numbers: 692– 296= 396.
Step 4: Reverse the digits of the number in Step 3: 693
Step 5: Add the numbers in Step 3 and 4: 693 + 396= 1089

the results in the three examples was always 1089.

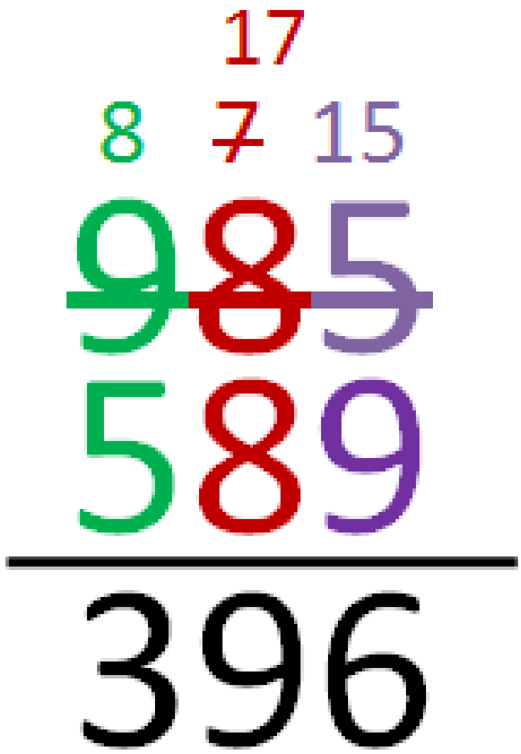
The course

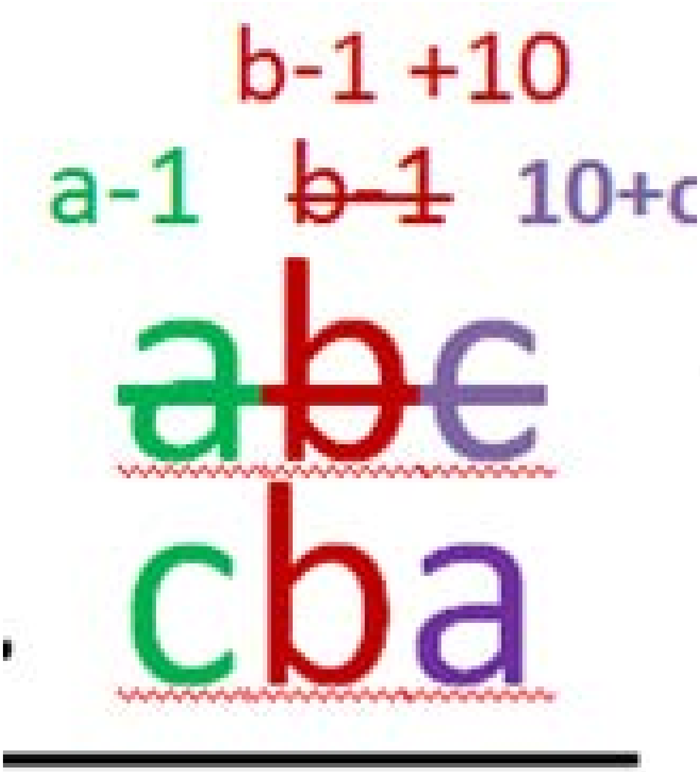
Step 1: Think of a 3-digit number where its digits are decreasing.
Step 2: Reverse the order of the digits.
Step 3: Subtract the number in step 2 from the number in step 1.
Step 4: Reverse the order of the difference in step 3.
Step 5: Add the numbers in step 3 and step 4.
The result is 1089.

Thomas Delanoê & Jonas Parais

What Happened

Let us observe what happened when we subtracted the digits of the numbers in step 3.The condition states the digits of the number chosen in Step 1 is decreasing. Now, it follows that when digits of the number is reversed, the ones digit of the subtrahend is larger than the ones digit of the minuend. This means that we have:





Why Trick Works

The generalization of the subtraction per digit; that is, we subtract each pair of digits independently, so we do not really consider their place values in relation to the original number. In the generalization, let the abc be the 3-digit number with digits a, b, and c where a > b > c.Ones: 10 + c – a Since the number abc has decreasing digits, in subtracting ones digit, we always have to “borrow 1” from the tens digit since a > c. So, we add 10 to c and then subtract a from their sum. Therefore, the ones digit is 10 + c – a. Tens: 9 the tens digit of the original and the reversed numbers are the same. Since we borrowed 1 from the minuend, the subtrahend is always greater than 1. This makes the difference of the tens digit 9. This is shown in the generalized subtraction (b – 1 + 10) – b = 9 (Can you see why?). Hundreds: a – 1 – c We borrowed 1 from a, making it a – 1. Subtracting, we have a – 1 – c.

Reversing the Difference and Adding

Shown in the figure below is the sum of the difference of the numbers we subtracted and that of which its digits are reversed. The ones digit add up to 9, the tens add up to 18, “carrying 1” to the tens digit. The tens digit add up to 9 + 1 = 10. This makes the digits of the sum 10, 8, and 9 which is 1089.

Hundreds	Tens	Ones
a - 1 - c	9	10 + c - a
10 + c - a	9	a - 1 - c
9 + 1	8	9

See you later aligator !!!

Article

The magic trick of 1089

Let's present now a magic trick based on numbers. More precisely on 1089. Firstly to perform this magic trick choose a number between one hundred and one thousand.

firstly a proof.

A b c

100 a + 10 b + 1 c

(100a+10b+c)-(100c+10b+a)
=100(a-c)-(a-c) =(100a+10b+c)-(100c+10b+c)
=100a+10b++c-100c-10b-a
=100(a-c)+(c-a)
=100(a-c)-(-c+a)
=100(a – c – a - c)
Denote by d the number a – c
Reverse subtract
=(100a+10b+c) – (100c+10b+a)
=100 d-d
A>c
d>1
Rearrange
100d-d
=100d***-100+90+10***-d
=100(d-1)+90+(10-d)
=100 d-d
Is a 3 digit number now
Now, add
(100a(d-1)+90+(10-d))+(100(10-d)+90+1(d-1))
100d-100+90+10-d+1000-100d+90+d-1
=-100+90+10+1000+90-1=1089
Secondly, let’s take an example for this magic trick.

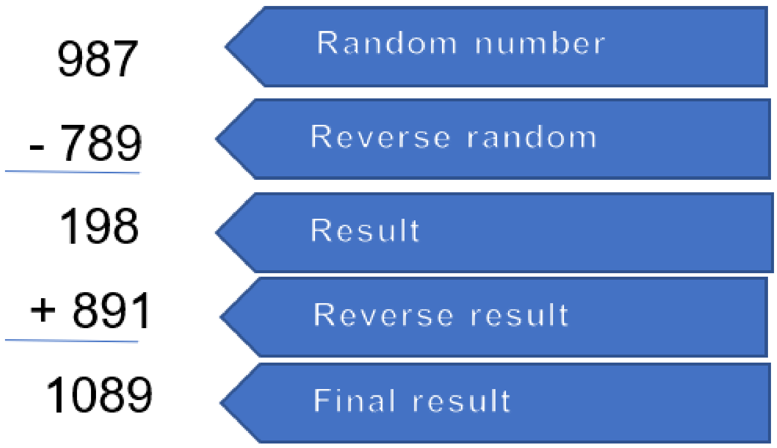
683
-386
297
792
1089

Thirdly The magic trick works at 90 percent because if we choose a number in which the digit of hundreds is the same as the unit when we reverse and substract. It gives a zero.

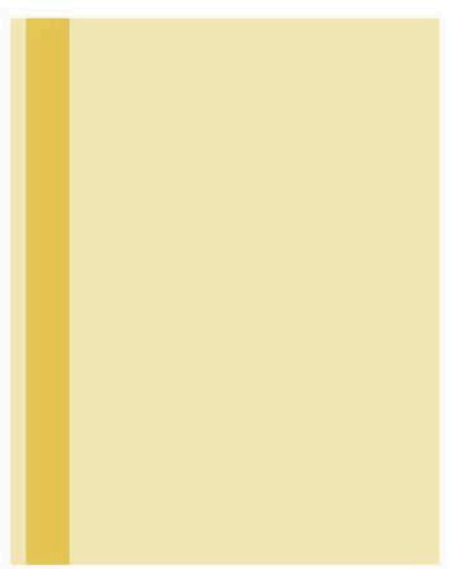
In conclusion for the magic I magic trick we need a number between one hundred and one thousand.

Then we apply the demonstration and as a result it gives the number 1089.nevertheless the magic trick works at 90 percent. There are a lot of magic tricks with a number sutch as Danemark and Kiwi.

alexandre del prete et mathis dupuis



The 1089



The magic trick

1. I take a piece of paper on which I write a prediction that will be the result of the calculation we are going to do.

2. Then for this magic trick I will need a partner and I will ask him to give me a 3 digits number but this 3 digit number must not have the same digit twice and the hundreds digit must be greater than the ones digit, take for example 987.

3. I choose another number which will have the same digits as the first but in reverse order. Which gives us 789 which I subtract from the first number. And the result is equal to 198.

4. I then add to this result a number which will once again have the same digits but in an enverse order which gives us 891 and the addition of these two numbers gives us 1089 and if we look at the prediction I made at the start of the round, it is the same number.

The explication :
For this magic trick, we take a number at random but which must respect two conditions : there must not be twice the same digit and the hundreds digit must be greater than the ones digit. We subtract this number by the same number but with the digits reversed. This gives us a result to which we add the same number to reverse the digits again. Once the computation finished we can observed that the result is equal to 1089 and it will always be the same result. The condition : - There must not be twice times the same digit - The hundreds digit must be greater than the ones digit.

Mathematical proof :
(100a + 10b + c)
If we replace the letters by numbers :
987 – 789 = (9 x 100 – 7 x 100) + (8 x 10 – 8 x 10) + (7 x 1 – 9 x 1) The mathematical formula (100a + 10b + c) - (100c + 10b + a) = 100 (a - c) – (a – c) 100 (a - c) + (c – a) = 100 (a - c) – (-c + a) = 100 (a - c) – (a – c)

Magic Trick of 1089

Random	573
Substract from	375
Result	198
Add to	891
Result	1089

$100a + 10b + c$

$100*5 + 10*7 + 3$

$(100*5 + 10*7 + 3)-(100*3 + 10*7 + 5)$

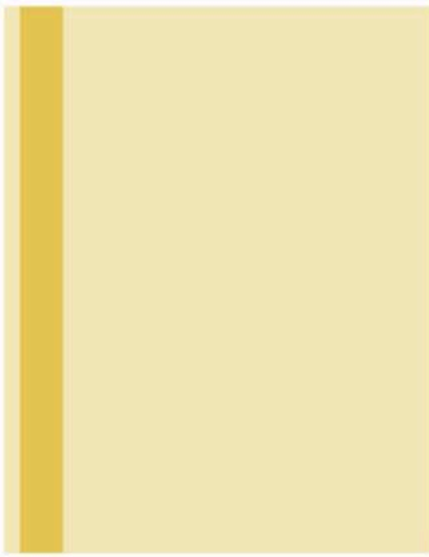
$100a + 10b + c) - (100c + 10b + a)$
$= 100 (a - c) - (a - c)$
$= 100 (a - c) + (c - a)$
$= 100 (a - c) - (- c + a)$
$= 100 (a - c) - (a - c)$

Random	343
Substract from	343
Result	000
Add to	000
Result	000

First, I'll show you the trick: I take a 3-digit random number 573 I invert the number which gives 375 Then I subtract 573 by 375 which makes 198 That I reverse him too, that gives 891 In the end I add the two, the result is 1089

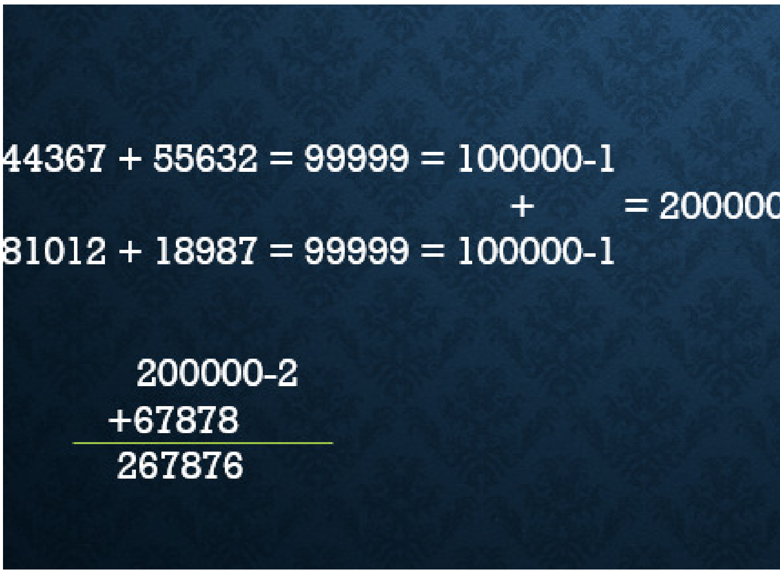
Now the explanations: First, I use ABC. That is to say 100a + 10b + c We replace them with our numbers which makes: (100 × 5 + 10 × 7 + 3) - (100 × 3 + 10 × 7 + 5) And finally, the formula is: (100a + 10b + c) - (100c + 10b + a) = 100 (a - c) - (a - c) = 100 (a - c) + (c - a) = 100 (a - c) - (-c + a) = 100 (a - c) - (a - c)

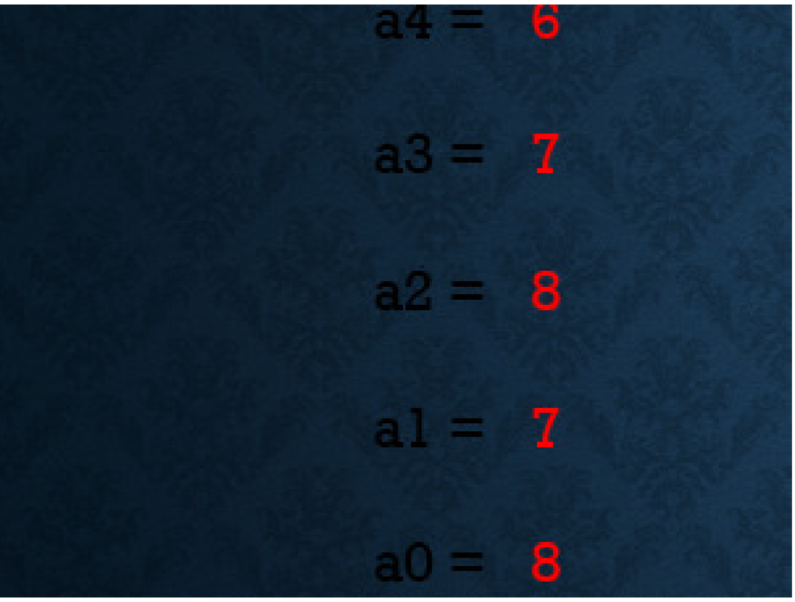
But be careful, the method does not work all the time because there are some exceptions like 343 for example

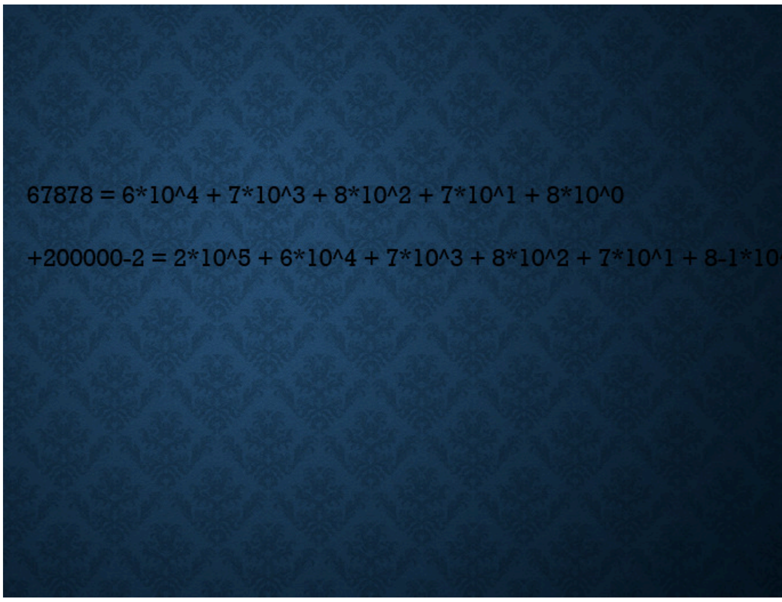


Lightning Addition

Random	44367
My number	55632
Random	81012
My number	18987
Random	67878
Result	267876



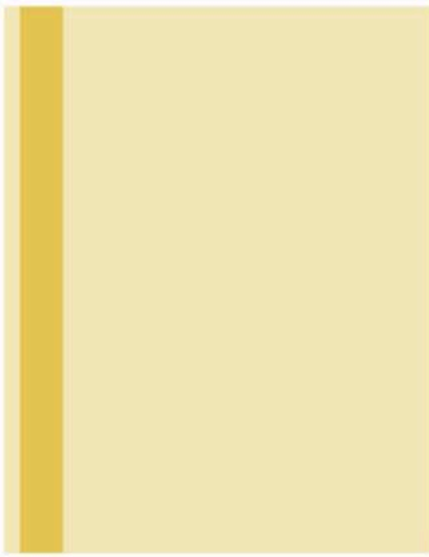




First, I'll show you the trick: I take a random number between 1 and 99999 The random number is: 44367 The number I chose is: 55632 The random number is: 81012 The number I chose is: 18987 The random number is: 67878 I can now quickly tell that the result is: 267876 number chosen randomly. a4 = 6, a3 = 7, a2 = 8, a1 = 7, a0 = 8.

Now the explanations: First, I made the addition of the first two random numbers with my two numbers to make both 99999. 99999 is equal to 100,000 minus 1

So if we add the 2, we get 200,000 minus 2 It only remains to add 67878 with 200000 and to subtract the whole by 2 to obtain 267876 For the math proof: Denote by a4, a3, a2, a1 and a0 the 5 digits of the 3rd



Magazine

mon logo

LOREM IPSUM LOREM IPSUM DOLOREM AT CONCEPTUER

N°01 - Septembre 2011

REPORTAGE

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

PORTRAIT

NEMO ENIM IPSAM CO LUPTAE UNDE QUAEO NEQUE PORRO

BALADE

LOREM IPSUM DOLO REM AT CONCEPTUER ELUS MODUS

LOREM IPSUM

ISPAMCO LUPTAE UNDE QUAED NEQUE PORRO

tribune

Lorem Ipsum?Directeur lorem ipsum at conceptuer

Sed ut perspiciatis unde omnis

Med ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

Sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non nucommodi consequatur? Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi

Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt neque porro.

Quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. ed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.

Madmagz.com
Le magazine de lorem ipsum doloem ?ipsum at maled
Directeur de la publication : Jean Dupond
rédacteur en chef : Jean Dupont
Rédaction : Jean Dupont, Marie Durand
Mise en page : Jean Dupont.

Adresse : 55 rue Jean Dupont, 75000 paris
tél. : 00 00 00 00 00
www.madmagz.com

contents

02 **LOREM** Les ernim ipsam vo lup tatem quia voluptas

04 **IPSUM** Sit aspernatur aut odit aut fugit, sed quia

06 **DOLOREM** Consequuntur magni dolores eos qui ratione

08 **ERNIM** Les ernim ipsam vo lup tatem quia voluptas

10 **CONSEPTUER** Sit aspernatur aut odit aut fugit, sed quia

14 **DOLORE** Consequuntur magni dolores eos qui ratione

08 **SIT ANIM** Les ernim ipsam vo lup tatem quia voluptas

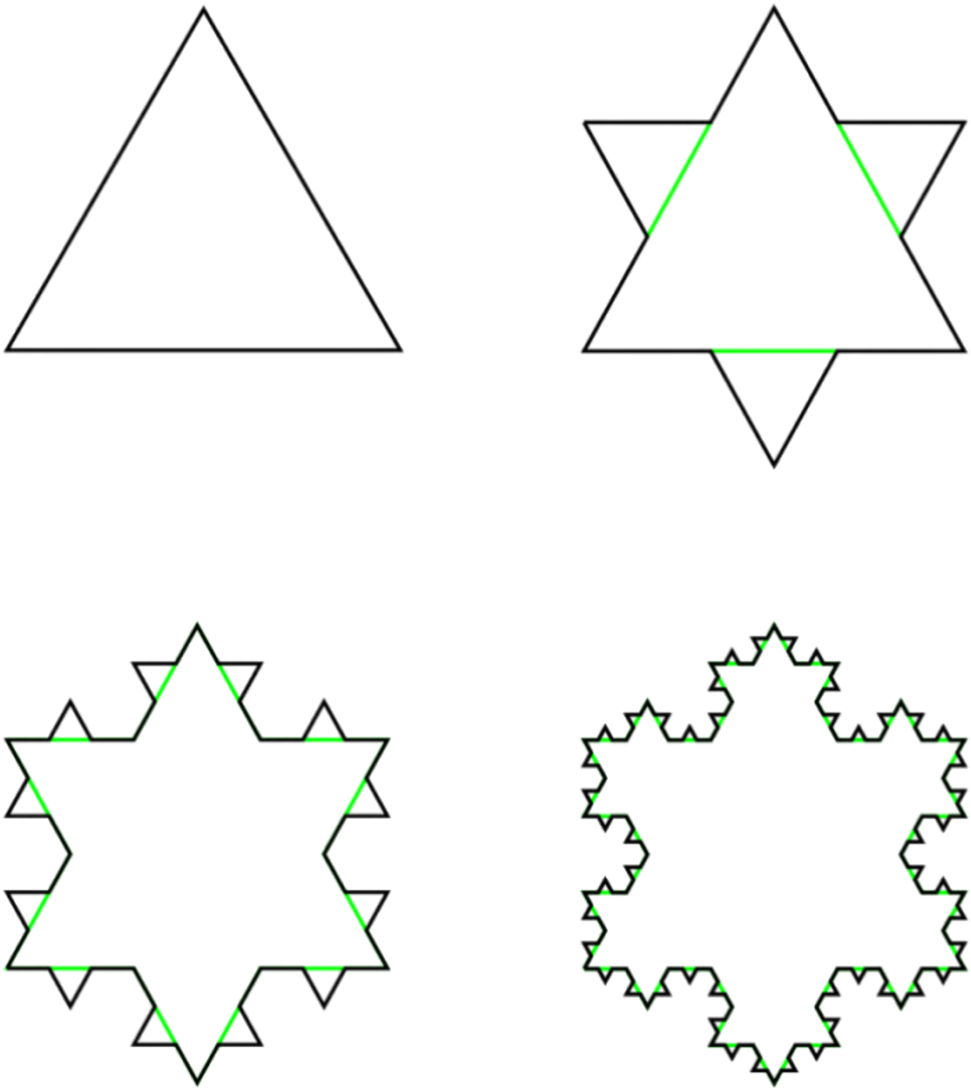
10 **NUMQUAM** Sit aspernatur aut odit aut fugit, sed quia

14 **BEATE** Consequuntur magni dolores eos qui ratione

There are a lot of exemples of these fractals in nature, such as flowers or even on animals.

Recently in DNL class, we studied the fractals. What they are and how they can be used. To understand it, we used an exemple of fractals :

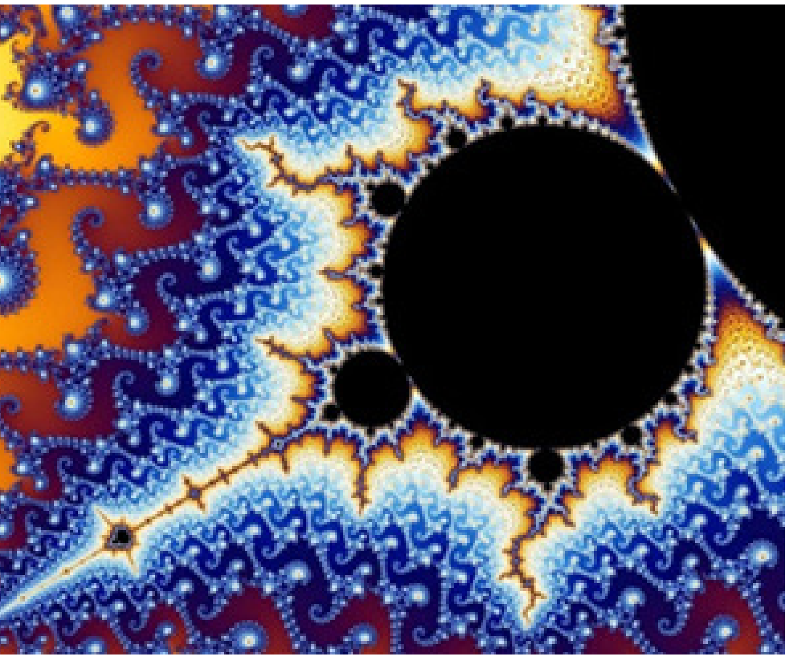
The Koch Snowflakes



The Koch Snowflakes

Basically, it's a triangle on which you add another triangle on each side and repeat this process over and over again. The more you will do it, the more triangles there will be.

This is an infinite process because the total number of sides always multiply by 3.
At a certain point, it will look like a snowflake, this is where it's name comes from.



Mandelbrot set :
In mathematics, the Mandelbrot set is a fractal defined as the set of points c of the complex plane.

Fractal snowflake :
The Koch snowflake is one of the first fractal curves to be described. It was invented in 1904.

The Koch snowflake and fractals:

Fractals are figures invariant by change of scale and are the graphic representation of recurring sequences. It is an "infinitely fragmented" geometric object whose details are observable at an arbitrarily chosen scale. Fractals are used to describe objects whose shapes reveal similar patterns on smaller and smaller scales of observation. They are used to describe natural phenomena with a certain irregularity, such as in geology for the study of mountainous landforms or in medicine for the study of organs.

The calculation part :
Cn = The number of sides at step n. Sequence (Cn) is a geometric sequence with common ratio 4.

Ln = The length of the sides at step n. The sequence (ln) is a geometric sequence with common ratio q = 1/3

Pn = The perimeter at step n.

Example :
At step 2,
Cn = 12,
Ln = 6.6 and
Pn = 80
So to calculate C3 we do : 4 * C2 C3 = 48
To calculate L3, we do : L2 * (1/3) L3 = 2.2cm
And to calculate P3, we do : C3 * L3 P3 = 100.6cm

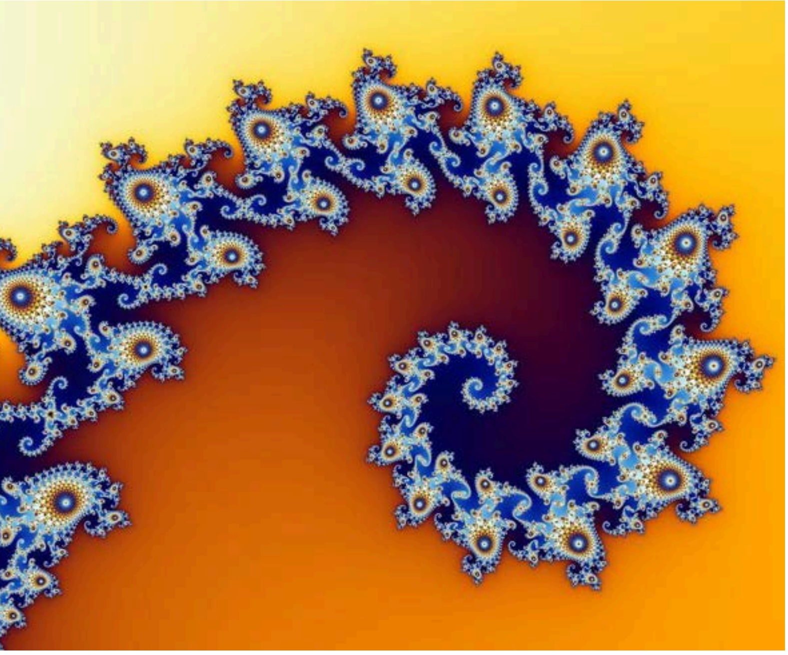
The properties and the paradox of the Koch snowflake :

- The Koch snowflake is a closed curve of infinite length which encloses a finite area. The dimension strictly greater than the topological dimension.

- A close curve of infinite length and a finite area.

How to draw the Koch Snowflake:

To begin with, you must have an equilateral triangle whose sides are one unit long.
Then, draw a triangle with sides one-third unit long in the center of each side of the original.
After that, draw a triangle with sides one-ninth unit long in the center of each new side.
Finally, remove your construction traits and you have your Koch snowflake.



Representation of the frqctal

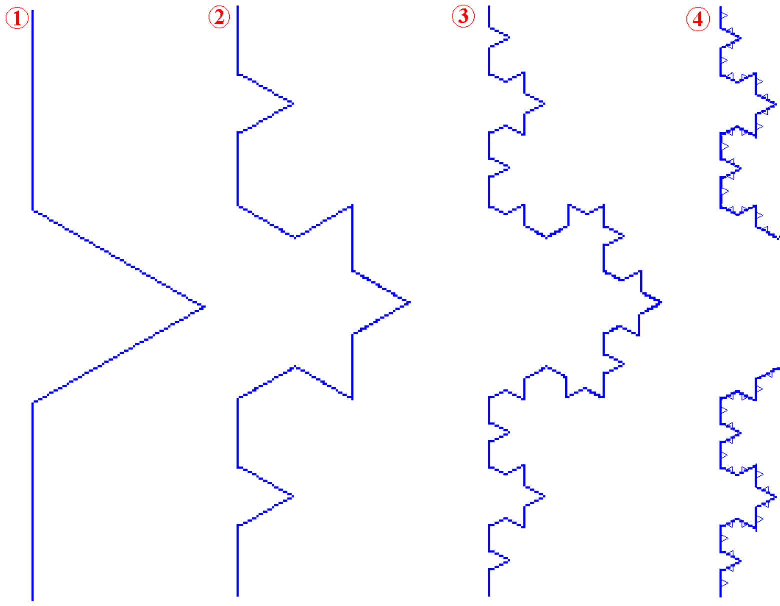


Figure of the Koch 's Flocon

The fractals are present all over our life, in the street, in the object or in our corp.

For draw the Koch snowflake we can follow instructions: - We start by drawing an equilateral triangle with the side length of tour choice. - Then divide each side by three, remove the middle third and draw two side of an equilateral triangle. - The repeat the step two as many times as you want. More the numbers of steps are greater more the snowflake is beautiful. The steps comport a common ratio it is an iteration.

For draw the Koch snowflake we can follow this method above and use these relations: Cn is the number of sides at step n: (Cn) >=1 Cn+1 = n+1*Cn Ln is the sides length at step n: (Ln) >=1 Ln+1 = 1/3*Ln Pn is the total length of closed curve at step n: (Pn) >=1 Pn = Cn*Ln The property of the fratcal Koch snowflake is that is a closed curve of infinite length which encloses a finite area, in a circle.

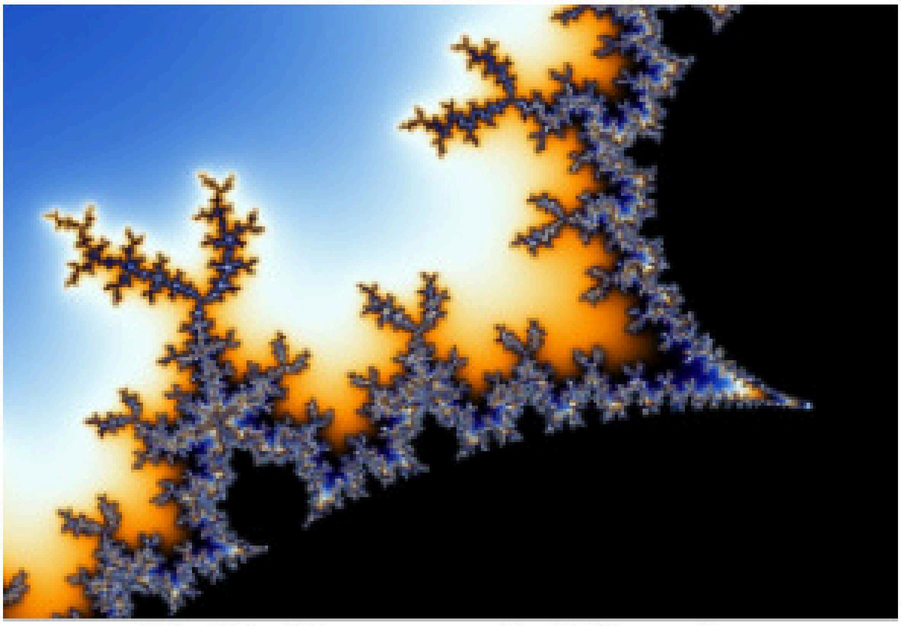
The perimeter of this figure is an infinite perimeter because when we add a triangle on one side the perimeter was increasing, and these operations can be done indefinitely. The fractals are used in the real life in some things, for example this mathematics object have a self-similarity structure at all scales. The fractals compose some elements as many natural phenomena such as the layout of coastlines or the appearance of Romanesco cabbage have approximate fractal shapes.

Biographie of Robert Koch :

Robert Koch was born in December 11, 1843 in Clausthal, Kingdom of Hanover - May 27, 1910 in Baden-Baden, German Empire) is a German doctor known for his discovery of the bacterium responsible for tuberculosis which bears his name: "Koch's bacillus ". His work to discover it earned him the 1905 Nobel Prize in Physiology or Medicine. He was one of the founders of bacteriology.

Fractals
always under our eyes

During the 20th century, the classic geometry fails to characterise too irregular shapes. In 1975, Benoît Mandelbrot invent the word "fractal" to name those shapes.

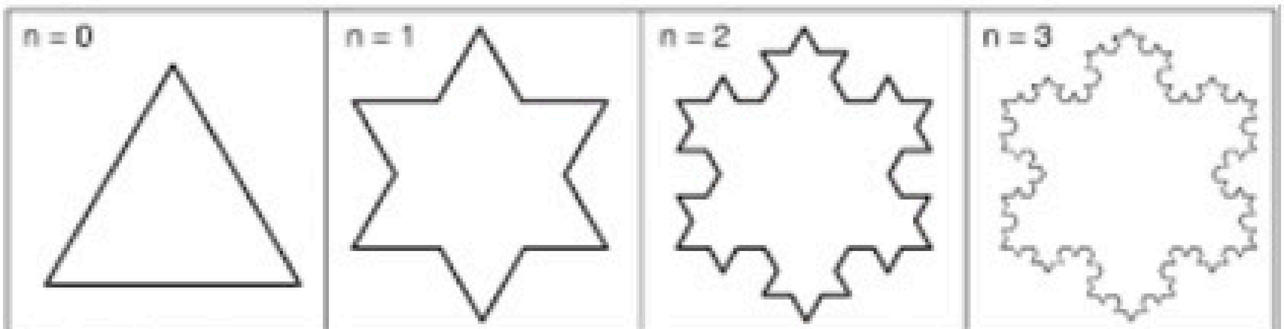


The Mandelbrot set, symbol of fractals

You can see an example of a fractal on this image. It shows what it is called a geometric sequence. Effectively, if you watch attentively those forms, you can notice that the shapes repeat themselves in smaller to all scale, it's the self similarity, a property of the fractal mathematics.

Take another example with the image below, the Koch snow flake that you can see on the right side.

Instructions to draw the snow flake : first, draw an equilateral triangle. Then, divide each side in three equals segments. Use the middle segment to draw an equilateral triangle towards the outside of the figure. Repeat the two last operations infinitely and you'll obtain the Koch snow flake !



	n = 0	n = 1	n = 2	n = 3
Number of sides (N)	3	12	48	192
Side length (S)	1	1/3	1/9	1/27
Perimeter length (P)	3	4	5.33	9.11

Geometric construction and basics calculations associated to the Koch snow flake

For each steps (iterations), we can calculate three parameters of the figure : the numbers of sides (N), the side length (S) and the perimeter length (P). For that, we can use geometric sequences of form U sub n. We can find them with iteration.

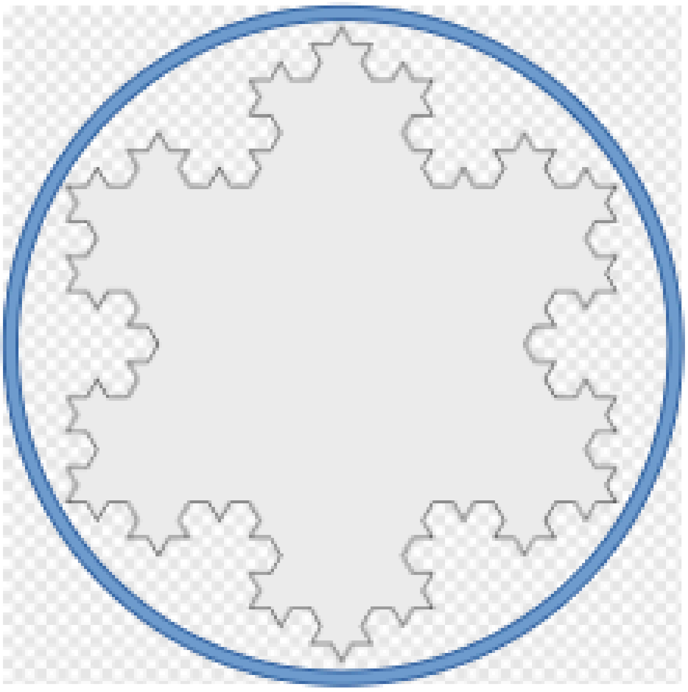
For (N), the <u>common ratio is 4</u> so the geometric sequence is $N_n = 3 \times 4^n$ because $N_0 = 3$.

For the side length (S), the <u>common ratio is 1/3</u> so the geometric sequence is $S_n = 1/3^n$ with here $S_0 = 1$.

For the perimeter length (P), it's $P_n = N_n \times S_n$

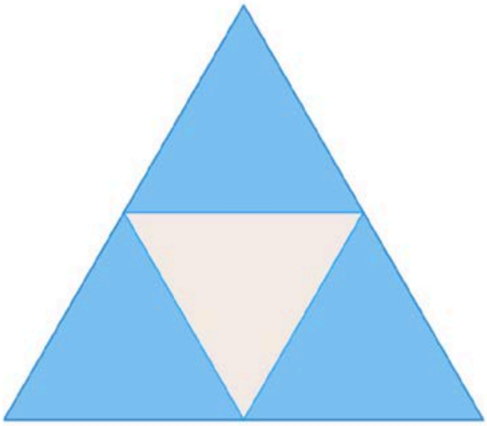
We can directly notice that the number of side is increasing while the side length is decreasing. What then happens to P_n ?

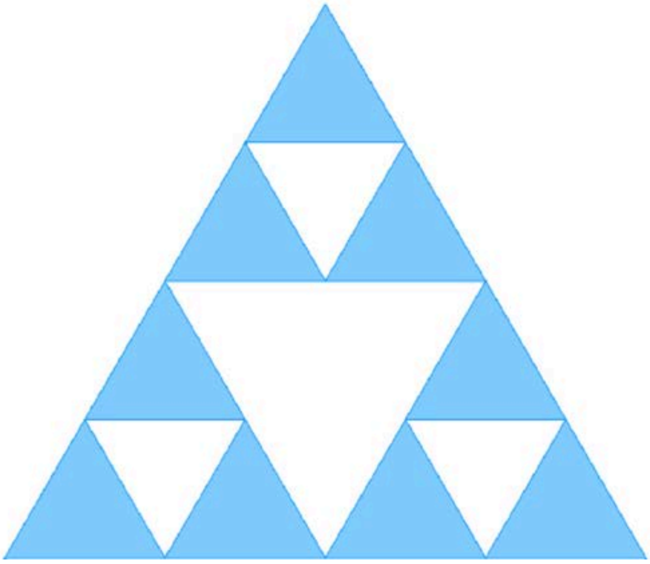
If P_n is equal to $N_n \times S_n$, it's equivalent to $P_n = 3 \times 4^n \times 1/3^n$ or $P_n = 3 \times (4/3)^n$
We can calculate the limit of this sequence which is $+\infty$.
So the perimeter length increase while n is increasing.

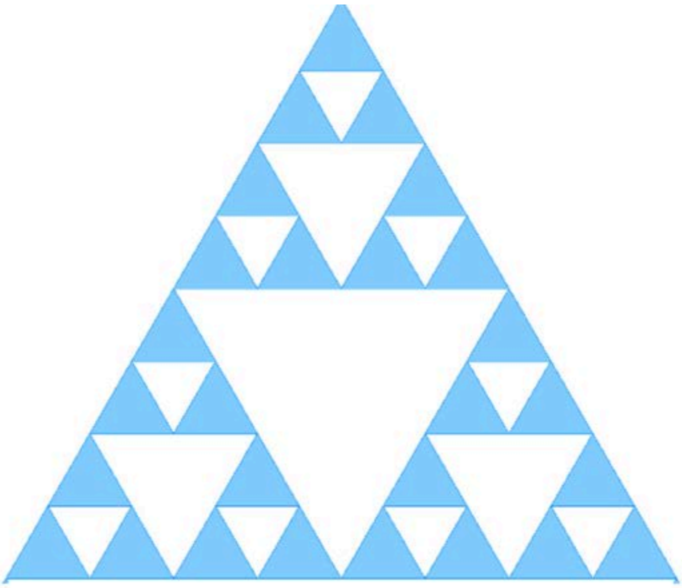

Koch Snow flake in his inscribed circle

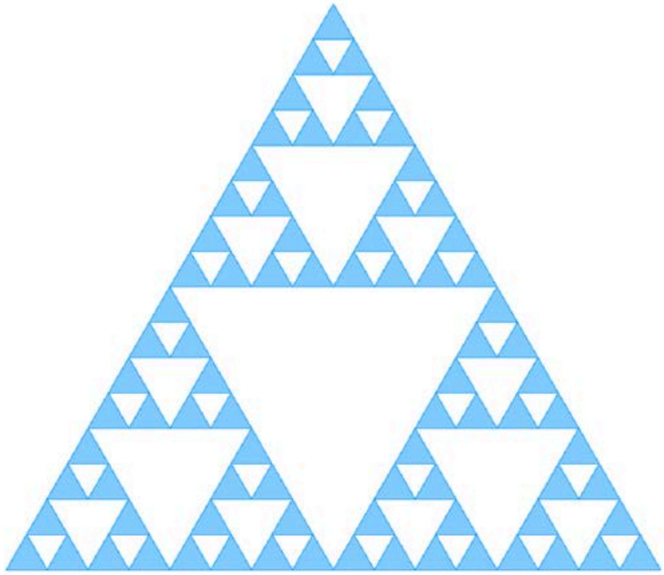
We said that the perimeter length increase but this illustration help us to understand the fractal paradox. The area of the Koch snow flake is always enclosed in the inscribed circle. So the paradox is that the perimeter length increase to the infinity but stay in the circle. In others words, it's an infinite perimeter in a finite area.

To conclude, we saw some properties of the Koch snow flake and the fractals like the self-similarity or the paradox above. Fractals help us to understand the world around us. A lot of plant are built by the nature around the fractals properties like the fern or the romanesco cabbage. That's why fractals are useful in real life.









In class we have built the Sierpinski Triangle with geogebra.

The first step is to make one equilateral triangle. Then select the midpoint of each side and join them. We have done this in the first picture.

This is the basic structure that we have been repeating using a tool in Geogebra.

WE CAN SEE THAT:

-Fractals are made up of geometric sequences.
-The limit of the perimeter of only one colored triangle is "0" while the limit of the entire colored area is ∞
-The limit of the area of a single triangle and the entire colored area is "0"

-The limit of the blank space is the area of the initial triangle.

WHAT IS A FRACTAL?

A fractal is a geometric body in which the same pattern is repeated at different scales and with different orientation. You can find them in nature.

The mysterious shapes of fractals

Fractals are geometric shapes which have the particularity to be self-similar. The self-similarity is the fact that each part of the figure looks like the whole figure. For example, we will study one of the first fractal discovered: the Koch snowflake.

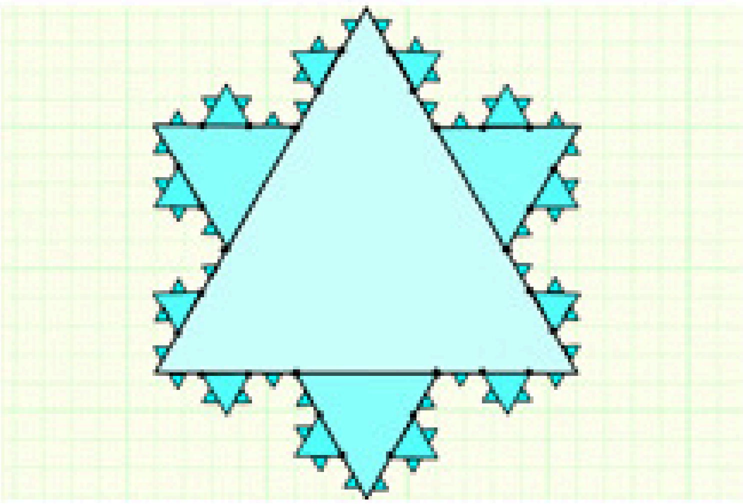
The Koch snowflake is a fractal invented by the Swedish mathematician Helge von Koch in 1904. The instructions to draw the snow flake are quite simple :

- Draw an equilateral triangle whose sides are one unit long

- For the first iteration, add a triangle with sides 1/3 unit long in the center of each sides of the original triangle

- In the second iteration, add a triangle with sides 1/9 unit long in the center of each sides of the first iteration

- Continue this process indefinitely.



The Koch snowflake at step 3.

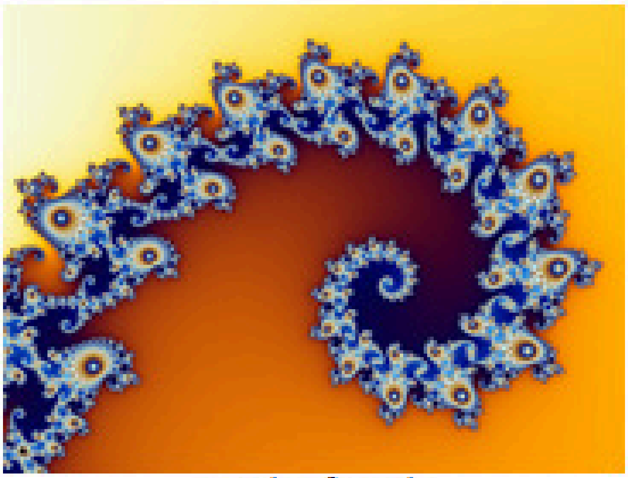
We can calculate the number of side and the length of each side at each iteration using geometric sequences. So we can also calculate the perimeter of the polygon. Indeed, at each iteration, each sides of the triangle turn into 4 sides, and the side length is divided by 3. So the number of sides at step *n* is Sn = 3*4^n and the length of the sides is Ln = (1/3)^n. The perimeter of the polygon is Sn*Ln. Thus the perimeter of the polygon at step *n* is Pn = 3*(4/3)^n

The sequence Sn is an increasing sequence with a common ratio of 4 and the sequence Ln is a decreasing sequence with a common ratio of 1/3.

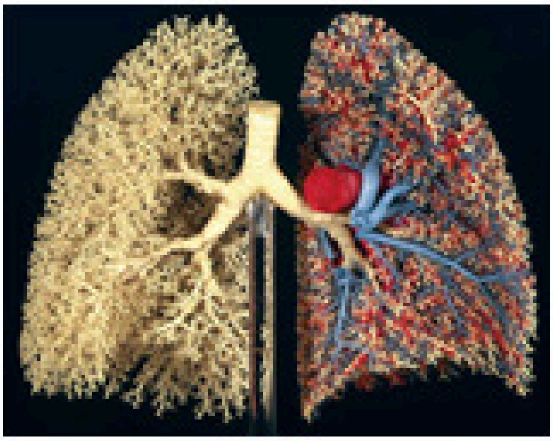
We can see that the perimeter, or the sequence Pn, is also an increasing sequence and have a common ration of 4/3. This proves that the perimeter of the curve is an infinite length. Moreover, this curve is enclosed in the circumscribed circle to the original triangle, which has a finite area.

So it creates a paradox, because this shape has an infinite perimeter but a finite area, and because it is encloses in a circle of finite area.

There are many others fractals in the world, and they are very useful in real life, especially for health and for 3-dimensional graphics. In facts, the fractals help us to understand how the body is made, because many parts of our body like lungs are made like fractals. Fractals are also used by graphic designers to create 3-dimensional shapes on computers.



Another fractal



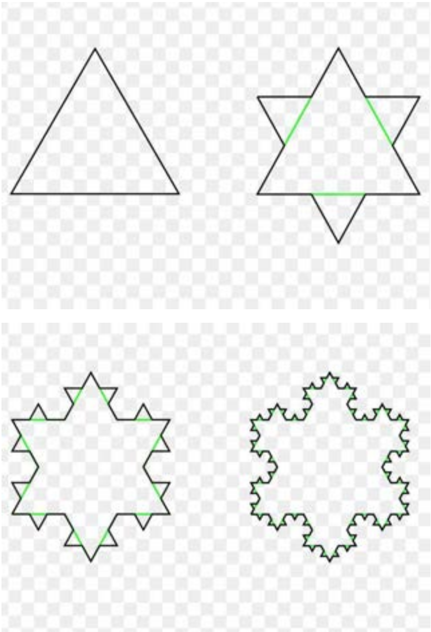
A lung

The koch snowflakes

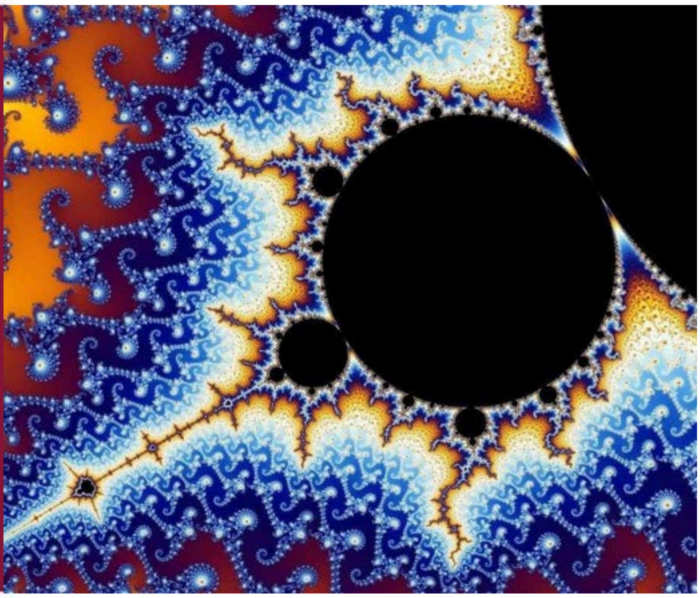
We will present to you the fractals in a snowflake's pictures

the probleme is to calculate the perimeter of a koch snowflakes made froma triangle and cut into several triangle to finally have our perimeter of the koch snowflakes . 3)geometrie step to draw the koch snowflakes are first draw a triancle of twenty centimeter to rate . then had another triangle of 6 centimeter to rate of the three sides of a triangle so we find a star to finish we had another on of 2.2 centimeter to rate on the sides of the triangle or on the twelve sides we optain the value of dimantion of the triangle by deviding the lenght of the demantion of the triangle by the number of dimention of a triangle or three 4)the first calculation correspiond to the second step so twenty devide three is approximatly egaul to 6.6 centimeter . For the seconde step the lenght of the triangle will be six.six centimeter you repeat this opération for the third step six .six devide three is approxymatly egual to 2.2 centimeter.At the end we abort the kochs snowflakes .5) to calculate the number of sides at step n the sequences is S(n)=3*4^n the number three is the first number of sides of the polygon the number four is the number of you need to find the next number of sides of polygon so to find it you multiplied the firt number of sides by four to the n puissances (4^n) (if n egual 6 you will have the number of sides of the step

6).to calculate the lenght of the sides at step n the sequences is L(n)=(1/3)^n and finally to calulate the perimeter at step n the sequences is P(n)=(4/3)^n the fractal are lots of fragmented geometric shape who can be split into a reduced copy of the whole.7)the fractals are geometrique sequences of self similarity who are comparated to russian doll that is to say the fractal are lots of fragmentedgeometrique shape that can be split into part .each of which is a reduced -size copy of the whole .In our DNL lecon we have see a documentary about fractal and the usseless of this and we have understood the fractals haves differents shapes so few guys have created dolls with geometrique fractal shapes of paterns .



is the representation of a fractals if we see it we can understood is the same shapes who look like the russian dolls.



it was a very big succes .the fractals create by benoit Mandelbrot have a utility of a numerique graphisme to . we have seen that fractals are the shapes of the nature take.

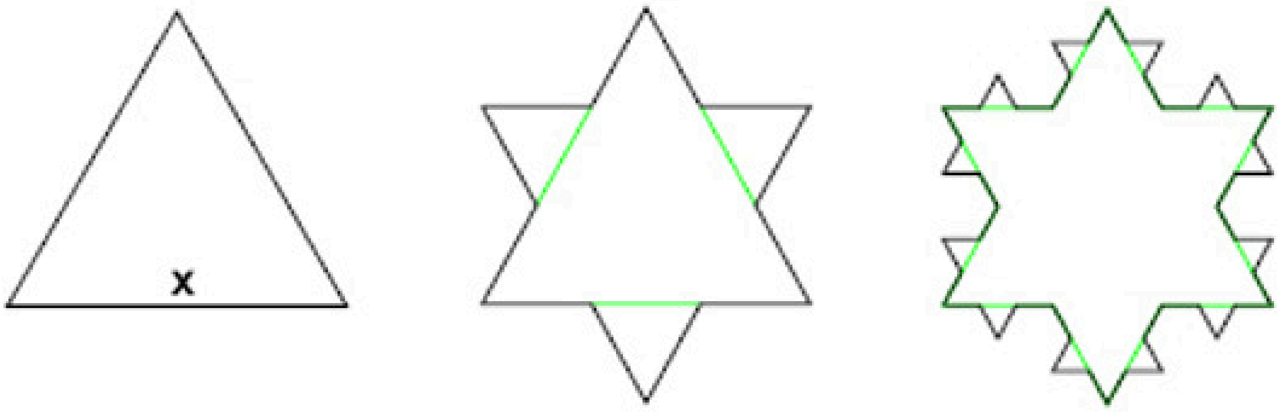
Justin Leriche et Damien Lejuez

THE KOCH SNOWFLAKE

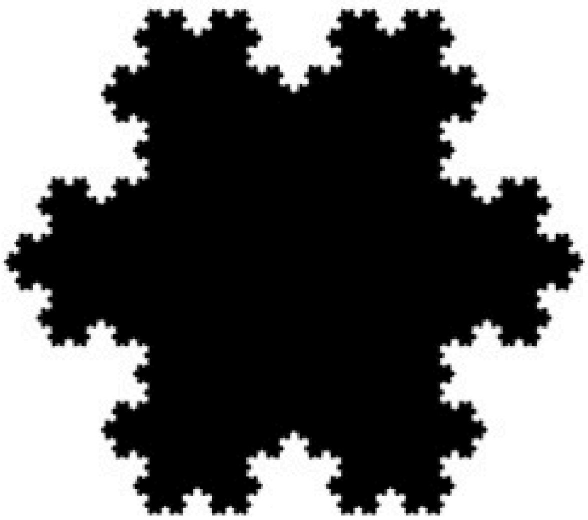
We worked on the Koch SNOWFLAKE but is a fractal. A fractal figure is a mathematical object that exhibits a similar structure at all scales. We go to explain how it worked.

The geometry steps:

First time we draw an equilateral triangle with sides are one unlit long. In the first iteration, a triangle with side one-third unit long is added in the center of each side of the original.
In the second iteration, a triangle with sides one-ninth unit long is added in the center of each side of the first iteration.
The picture illustrates the instructions to draw the snowflake:



But successive iteration continues indefinitely, and we get this:



Introduce Sequences:

The sequence about Koch Snowflake is a geometric sequence.

Calculate at steps n:

Let Cn the number of sides at step n.
Denote by Ln the side length at step n.
Denote by Pn the total length of the closed curve at step n.

Step n	Cn	Ln	Pn
1	3	20	60
2	12	6,6	80
3	48	2,2	105,6

(Cn) n >= 1 | C1=3 / Cn+1 = 4xCn

(Ln) n >= 1 | L1=20 / Ln+1 = 1/3xLn

(Pn) n >= 1 | Pn = CnxLn

On the spreadsheet, we calculate the triangle for a side length of 20cm.

The sequence had a common ratio.

The properties and the paradox:

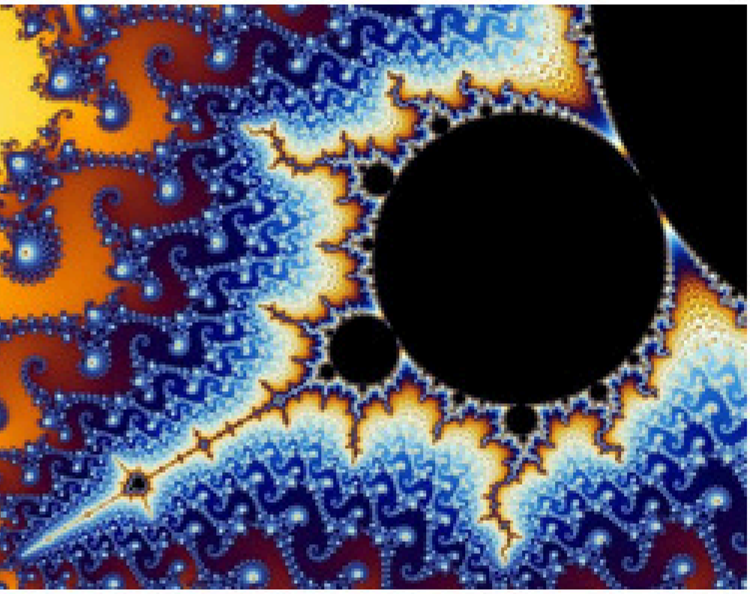
The paradox of fractals is a closed curve of infinite length and a finite area.

The fractals are the self-similarity, and a fractal had a simple and recursive definition.

How they are used in the real life:

The fractals are used in the real life for art, for make synthetic landscapes.
They are used for designing some clothing.

Fractals

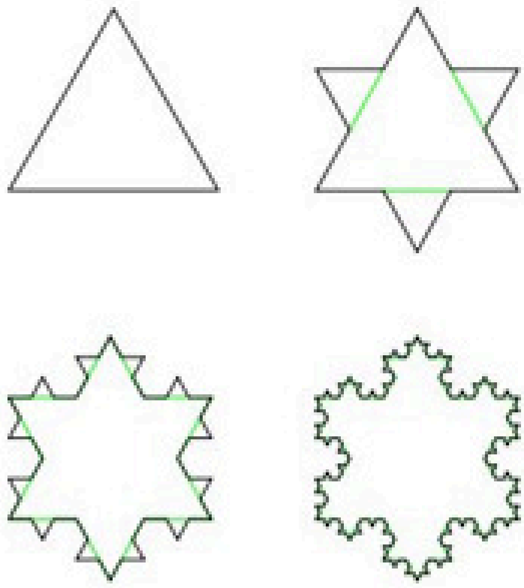


actals by Benoît Mandelbrot, the discoverer of fractals.

What is fractals, the geometric object who exist in every natural object ?

The word "fractals" has been invented by Benoît Mandelbrot, a mathematician. He describe a fractal like some geometric objects that zooming on some part we can see the whole figure. They are a self-similar figure. We can find fractals in lot of object in nature like the clouds or on the trees with here leaf.

We can take a simple example, the Koch snow flake who consist to draw an equilateral triangle. We divide every segments in three and draw another equilateral triangle with base of the middle segment. We delete the segment at the base of this new equilateral triangle and we repeat this operation for the new segments of the new triangle.



The process to draw a Kock snowflake

The Koch snowflake have a paradox and for see this we need to know how calculate the perimeter.

To calculate the perimeter of the Koch snowflake we need to know the step. At step n, the number of sides it's equal at four times the side at step n-1 and the side length at step n it's equal at one third of the side length at step n-1. Finally, the perimeter its equal at number of sides multiply by the side length. It's for this is necessary to know the first side length and the step to found the number of side and the side length at this step.

To resume, at step n, let c_n the number of side, l_n the side length and p_n the perimeter :

- $c_{n+1} = 4 \times c_n$ with $n \geq 1$ and $c_1 = 3$. So the sequence (c_n) is a geometric sequence with common ratio 4.
- $l_{n+1} = l_n / 3$ with $n \geq 1$. So the sequence (l_n) is a geometric sequence with common ratio 1/3.
- $p_n = c_n + l_n$

The five first step with side length of 20:

Step n	Number of sides	Side length	Perimeter
1	3	30	90
2	3*4=12	30/3=10	12*10=120
3	48	3,333…	159,999…
4	192	1,111…	213,333…
5	768	0,370370…	284,444…

The paradox of the Koch snowflake it's a closed curve of infinite length and a finite area.

Happy new year

The problem is very simple, it is a three door game, the presenter asks the player to choose a door. After the presenter opens one of the doors of the player has no choice to discover a goat and influences the player for that choice. Then the player can choose the other door or not. The Problem is doing you swap or not.

First batch

The results of the Spanish

Spanish students all think that swapping the door is the solution and that also increases the chances of winning. All the Spanish students think that we must change the doors because at the beginning we have 33% of the chances of falling on the car, then the presenter necessarily opens a door with a goat and the change of door makes it possible to change this 66%. So the change of choice seems to be a good solution.

The Monty Hall Problem

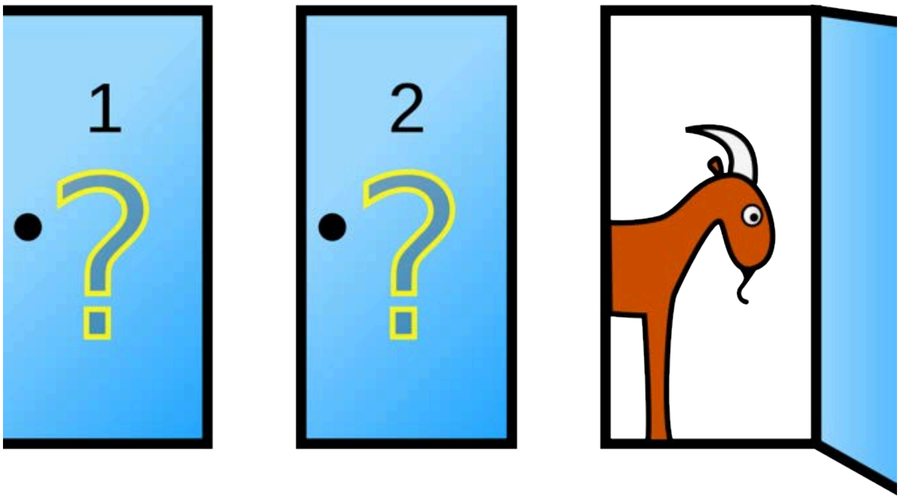


diagram of the problem

The problem is very simple, it is a three door game, the presenter asks the player to choose a door. After the presenter opens one of the doors of the player has no choice to discover a goat and influences the player for that choice. Then the player can choose the other door or not. The Problem is doing you swap or not.

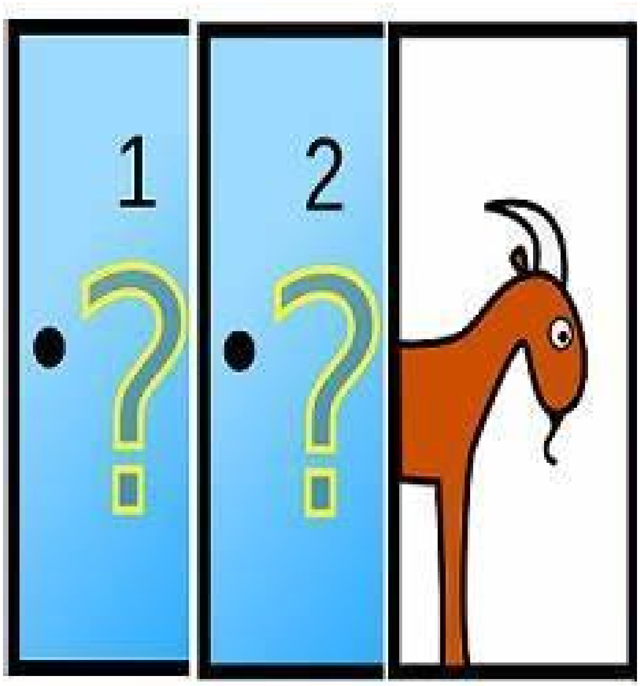
In the first part of the game we have to choose a door to try to find the car which represents 1/3 of chances to find the car, then the presenter opens one of the other two remaining doors and necessarily shows a goat because he is not going show the door where the car is. Then he proposes to change the door, at this moment it is necessary to change because logically this increases the chances to 2/3 and in principle increases the probability of finding the car.

Conclusion :

For me the best solution is to change your position as it increases the chances of finding the car. This idea may seem counter-intuitive because we may think that staying on our first choice means that we will find the car but in reality this only increases our chances to 1/2 whereas by changing the choice we increase the odds at 2/3. It may therefore seem logical to stay on your choice but in reality it is better to change.

Here is the problem :

The Monty Hall Probleme is a probabilistric game. The game opposes a presenter against a player. We got 3 doors, one door with 1 car and 2 doors with goats. We need to have the car to win the game.
The player chooses a door, and the host open a different door and say "swap or stay?".



The question that often comes up is should we change our choice or keep it ?
And we got two answers, some people say it's better to change because we got a best percent to get the car, and some people say the first choice is the good choice.

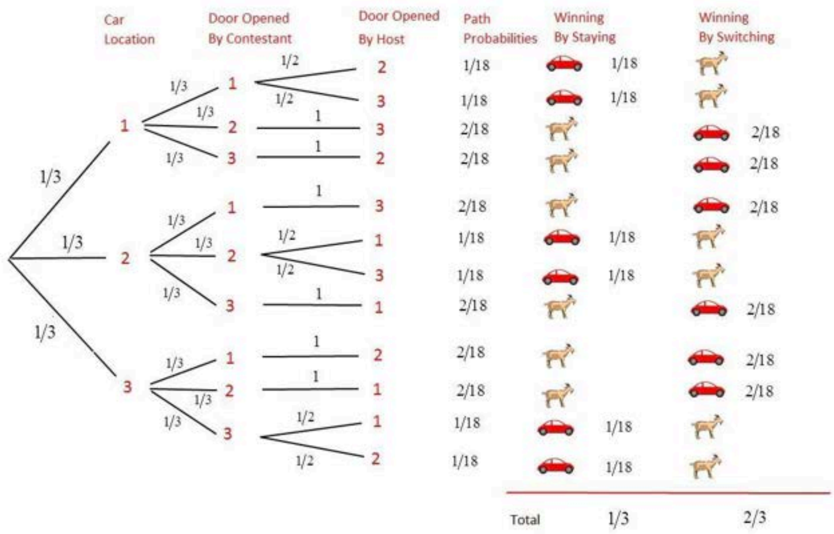
All spanish students thinks the better choice is to change the swap the first choice, because we got a higher percent to win the car.

The probability

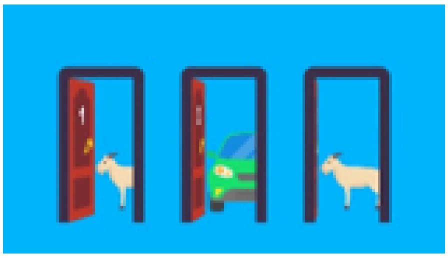
The first choice we have 1/3 to have car and 2/3 to have goats. If we swap, we got 2/3 to have cars and 2/6 to have goats and if we do not swap, we got 1/3 to have car and 2/3 to have goats.

In my opinion, its better to swap because if when you open the first door you have goat, the host must open another door and if it's a goat again you need to open the last door for win th car. Your percent of chance to win the game is higher when you swap your choice.

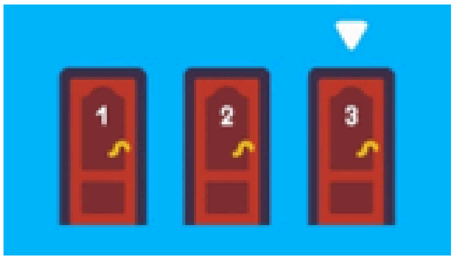
For me this game is very funny, the rules are simple and interesting but the opinion to swap or stay is divided by two.



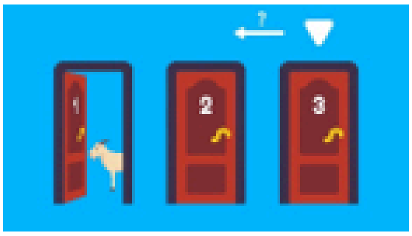
Monty Hall Problem



We are on a game show where there is a presenter and a player who make a game. The game is easy, the player is place before tree door who are close. Behind a door there is a car and behind the two last door there are two goats. The player must first designate a door. Then the presenter must open a door which is neither the one chosen by the candidate, nor the one hiding the car. The presenter knows which is the right door from the start. The candidate then has the right to keep the same door or to change door.



Now, choice the door number three, the presenter opening the door number one. Behind this door is a goat, he leaves us a choice to change the door. Now the question is, "Does the player increase their chances of winning the car by changing their initial choice?". According to the Spanish students, the most frequent answer is to change us choice. **Why?**



Since a probability is expressed as a quotient of the number of cases, and since the door never opens on the car, we therefore have two out of three chances of being faced with the choices "keep a goat or change it for the car".

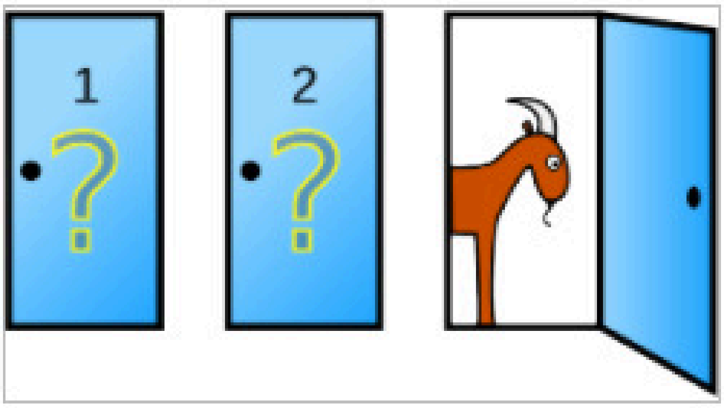
We can now observe the sequence in each of these three cases:

- Case 1: The candidate having initially chosen the door of goat number 1, the presenter opens the door of goat number 2. The remaining door hides the car.
- Case 2: The candidate having initially chosen the door of the goat number 2, the presenter opens the door of the goat 1. The remaining door hides the car.
- Case 3: The candidate having initially chosen the door of the car, the presenter opens the door of one of the two goats. The remaining door hides a goat.

This idea is counter intuitive because we would tend to think that we have one chances on two to win but no we have two chances on three because when the presenter unveils a goat, we know that another door not choice is a car in two- thirds case because the presenter can't open us door and he not open another door with a car so most open a door with a goat.

Voici le lien pour voir la vidéo : https://youtu.be/w-ypi2B7RSI

The Monty Hall problem



The three doors of the game

You play in a game where three doors are presented to you. The one who present to you those doors is the game host. Behind those doors are two goats and one car. Obviously, you goal is to win the car.

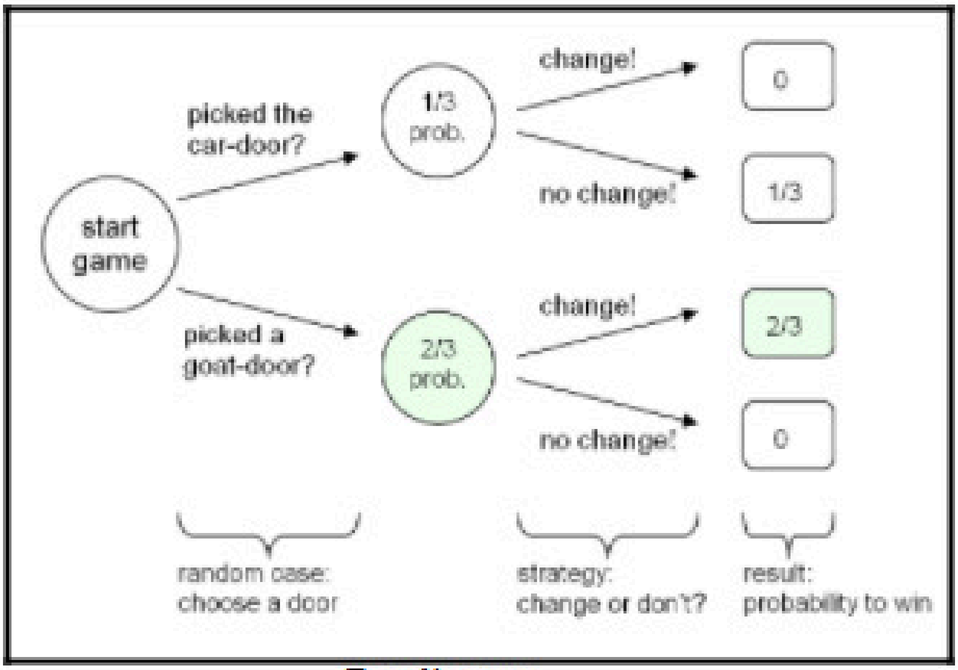
First, you have to pick one of the three doors. Then, the game host, who know what is behind each door, will reveal an other door than your choice who hide a goat. Now, there is two door left, one with the car, the other with a goat.

The problem is the following, should you swap and take the other door or should you stick to your original choice ? Intuitively, you could think that the win rate is 50 percent. But that's not this simple…

Some Spanish students have done simulations about the Monty Hall problem. They all say that, apparently, the best choice is to swap because it result in more win than to not swap the first choice. Now let's try to prove this hypothesis.

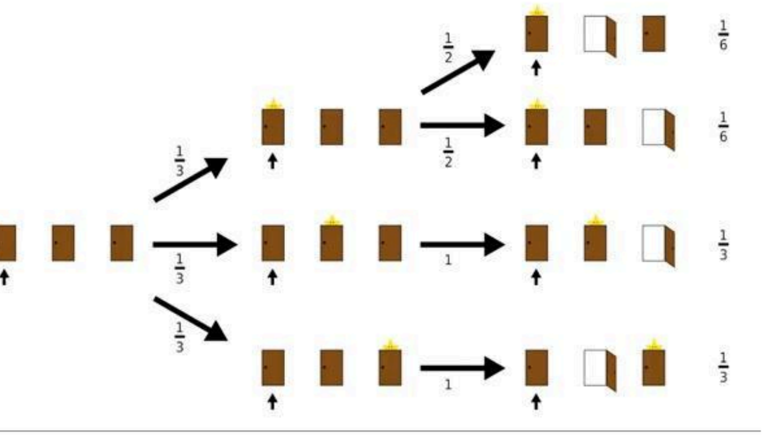
If you draw a tree diagram using probability, you'll obtain this result :

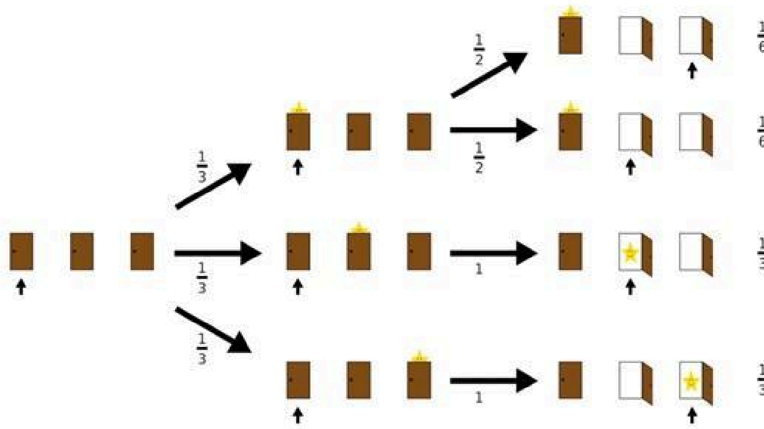
For the case that you don't swap, if you first pick the car (1/3), you'll win. If you first pick a goat (2/3), you'll loose. In the end, it make 1/3 of win rate if you don't swap.
For the case that you swap, if you first pick the car(1/3), you'll loose, but if you first pick a goat (2/3), you'll win !



Tree diagram

So in conclusion, if you swap, you'll have 2 chances over 3 to win because you have 2 chance over 3 to pick a goat in the first choice. This is counter intuitive because you could think that it's a fifty fifty, but maths probability can help you to understand counter intuitive idea like this.





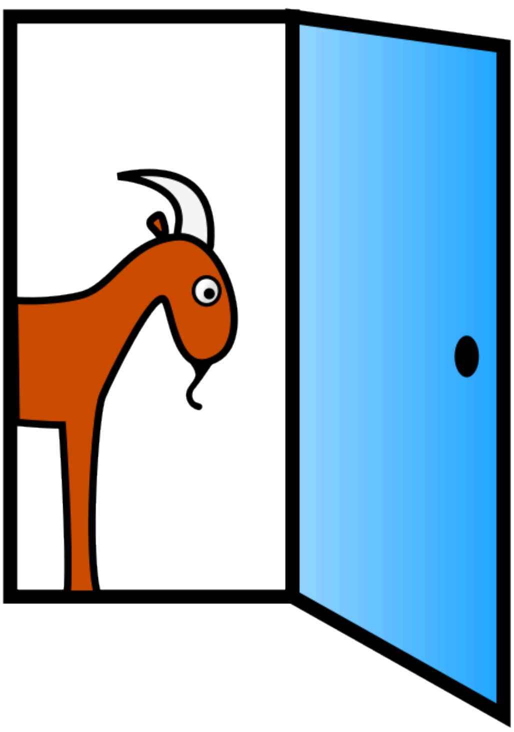
A diagram which represent all the possibilities if you don't swap and their probabilities.

A diagram which represent all the possibilities if you swap and their probabilities.

How to understand the Monty Hall Problem

What's the problem?

When the speaker asks you the question, should you swap? Do you have more chances of win if you swap, or if you stay, or does it makes no difference? The most frequent answer is that it makes no difference, because it remains two doors and one gift so you have 50 percent chance of win with each door.



The Spanish students' answer :
It is better to change door.

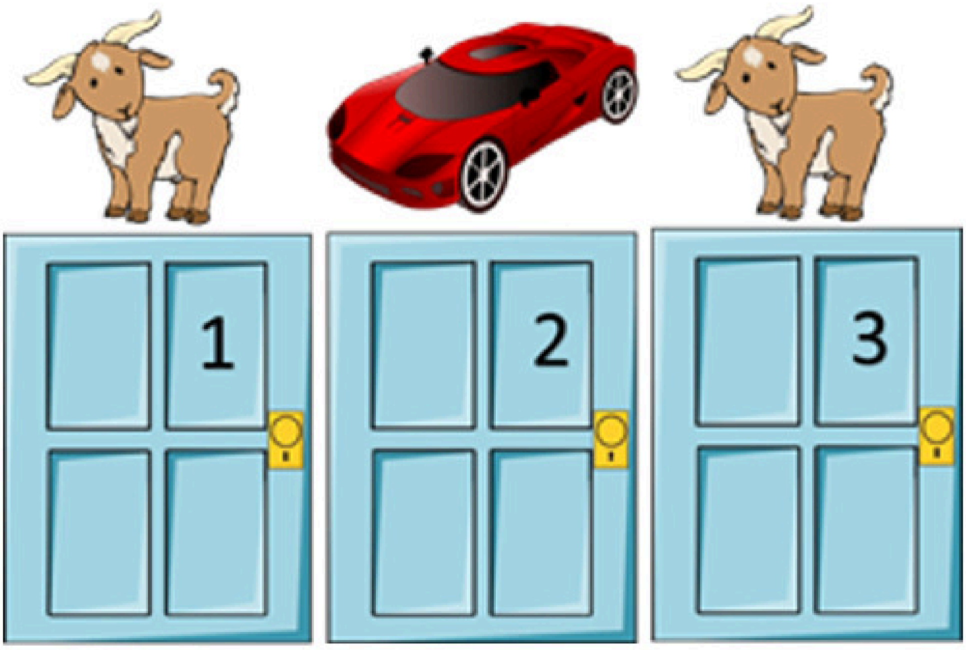
The reasoning :
The simulation shows that the chances of winning by swapping are 68 to 85 percent, while the chances of win by keeping the door are approximately 30 percent -If my first choice is a goat, the speaker can only reveal the other goat, so I win if I swap. But the chances of picking a goat are 2/3, so I have 2/3 chances of winning by swapping.

Conclusion :
This choice is difficult, because the fact of swapping is a counter intuitive idea. In fact, it is really difficult to understand that we have more chances of win by swapping, because we forget the initial situation.

totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem.
Sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non nucommodi consequatur? Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni.

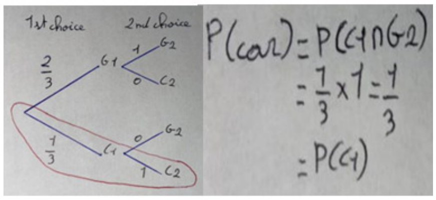
The game :

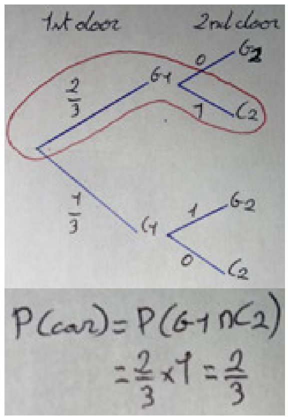
Imagine a game in which you have three doors in front of you. One door hides a gift, for example a car. The two others hide a goat. Of course, the car and the goats are randomly placed, and you don't know where they are. Now, for the first step, you have to choose a door. Next, the announcer opens one of the two doors that you did not choose, and it contains a goat. Then, he asks you the following question: "Do you want to swap your door or to stay on your first choice?" Finally, he opens the last door and you see if you have won or not.



The Monty Hall Problem

Calculated part:





The Monty Hall problem is a probabilistic game. Its paradox is that it is simple in its enunciation but not intuitive in its resolution. It is named after the one who introduced this game to the United States for thirteen years, Monty Hall.

The basic data of the Monty Hall problem : three doors, behind one of them is a car and behind each of the other two is a goat.

The game opposes a presenter against a player. This player is placed in front of the three closed doors presented above. He must first designate a door. Then the presenter must open a door which is neither the one chosen by the candidate, nor the one hiding the car. Then, the candidate has the right to open the door he chose initially, or to swap and open the third door.

At the outset, we know that the probability of having a goat is 2/3, so the probability of having the car is 1/3.

Let's imagine that the course shown in red is yours. This would mean you don't swap after the opening one of the doors by the presenter. Recall that the door opened by the presenter is one of the other two remaining after your first choice and that it must be a goat.
Here the calculation corresponds to the diagram above. Notations using conditional probability :
PG(C) = 0 PC(C) = 1

Now here's what might have happened if you had swapped your mind after opening one of the doors. By swapping, you have a 66% chance of winning the car and only 33% chance of winning a goat.
Here the calculation corresponds to the diagram above. Notations with conditional probability :
PG(C) = 1 PC(C) = 0

So, the players ask themselves a question: How does the probability of having the car go from 33% to 66%? It's very simple, if you choose a goat from the start, the presenter has to open the other door that contains the goat for you.

You just have to choose whether or not to swap the door. The probability to win the car then drops from 1/3 to 2/3.

In my opinion, it is better to swap because your chances of winning the car will be greater. Also, no one thinks about it, but if you choose a goat from the start, the presenter might seem a little more embarrassed about having only one door choice to open. So, if you are really smart you will understand that there is only one option and you just have to change the door. Take this as a guess. On the other hand, my first suggestion may be counter intuitive because it is also possible that you have chosen the right door from the start. In this case, swapping will be the wrong choice.
I find this game exciting because the rules are interesting and they are unlike any other game.