

1 Introduction

CrInGeCrInGeProduction.Supercringeintroductionhere :

2 Some basic knowledge about researching problem...

Parameters and constants we use in this work:

Constants (3):  
e = 2.718282  
pi = 3.141593  
AbObA = 1337.228690

Variables (3):  
a = 3.141500  
kek = 13.000000  
x = 1.000000

Parameters of exploration :  
Number of differentiates = 2  
Macloren’s accuracy = 3  
Tanget point = 0.200000  
Delta coverage of tangent point = 2.500000  
Graph diapasone = [−1 : 15]

So let’s calculate smth with a given function:  $f(a, kek, x) = \cos(a + \frac{kek}{1.000^{AbObA}}) + \ln(1.000 + x \cdot kek \cdot (1.000^{(\ln e)} - 0.000))$

Firstly, let’s insert all constants:  $f(a, kek, x) = \cos(a + \frac{kek}{1.000^{1337.22869}}) + \ln(1.000 + x \cdot kek \cdot (1.000^{(\ln 2.718)} - 0.000))$

And simplify this expression (if possible):  $f(a, kek, x) = \cos(a + kek) + \ln(1.000 + x \cdot kek)$

3 Exploration the expression as a function of multiple variables

Calculation value of function in the point BRITISH SCIENTISTS WERE SHOCKED, WHEN THEY COUNT IT!!!

In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it’s value = 1.73157  
Personally, I’ve always thought about first derivation of something like that function... Haven’t you?  
But now, by using informatics and math skills I feel that I’m prepared enough to calculate it!

1 step: Finding a derivation of  $kek$   
While preparing for exams, I learned a lot of new things, for example:

$(kek)' = 1.000$   
2 step: Finding a derivation of  $x$   
Only after two cups of beer you might understand it:

$(x)' = 1.000$   
3 step: Finding a derivation of  $x \cdot kek$   
Never say it to girls:

$(x \cdot kek)' = kek + x$   
4 step: Finding a derivation of 1.000  
Only by using special skills we might know::

$(1.000)' = \dots = \text{[top secret]} = \dots = 0.000$   
5 step: Finding a derivation of  $1.000 + x \cdot kek$   
What if:

$(1.000 + x \cdot kek)' = kek + x$   
6 step: Finding a derivation of  $\ln(1.000 + x \cdot kek)$   
Even my two-aged sister knows that:

$(\ln(1.000 + x \cdot kek))' = \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
7 step: Finding a derivation of  $kek$   
The first task in MIPT was to calculate:

$(kek)' = 1.000$   
8 step: Finding a derivation of  $a$   
Never say it to girls:

$(a)' = 1.000$   
9 step: Finding a derivation of  $a + kek$   
It’s simple as fuck:

$(a + kek)' = \dots = \text{[top secret]} = \dots = 2.000$   
10 step: Finding a derivation of  $\cos(a + kek)$   
As we know:

$(\cos(a + kek))' = 2.000 \cdot (-1.000) \cdot \sin(a + kek)$   
11 step: Finding a derivation of  $\cos(a + kek) + \ln(1.000 + x \cdot kek)$   
I was asked not to tell anyone that:

$(\cos(a + kek) + \ln(1.000 + x \cdot kek))' = 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
Congratulations! The first derivation of the expression is:  
 $f'(a, kek, x) = 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it’s value = 1.84017

Finding the 2 derivation Let’s find the 1 derivation of the expression:

1 step: Finding a derivation of  $kek$   
Only after two cups of beer you might understand it:  
 $(kek)' = \dots = \text{[top secret]} = \dots =$

= 1.000

**2 step:** Finding a derivation of  $x$   
Even my two-aged sister knows that:  
 $(x)' =$   
= 1.000

**3 step:** Finding a derivation of  $x \cdot kek$   
Even my two-aged sister knows that:  
 $(x \cdot kek)' =$   
=  $kek + x$

**4 step:** Finding a derivation of 1.000  
When I was a child, my father always told me: "Remember, son:  
 $(1.000)' =$   
= 0.000

**5 step:** Finding a derivation of  $1.000 + x \cdot kek$   
I have no words to describe this fact:  
 $(1.000 + x \cdot kek)' = \dots = \text{[top secret]} = \dots =$   
=  $kek + x$

**6 step:** Finding a derivation of  $\ln(1.000 + x \cdot kek)$   
My roommate mumbled it in his sleep all night:  
 $(\ln(1.000 + x \cdot kek))' = \dots = \text{[top secret]} = \dots =$   
=  $\frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$

**7 step:** Finding a derivation of  $kek$   
I have no words to describe this fact:  
 $(kek)' = \dots = \text{[top secret]} = \dots =$   
= 1.000

**8 step:** Finding a derivation of  $a$   
While preparing for exams, I learned a lot of new things, for example:  
 $(a)' =$   
= 1.000

**9 step:** Finding a derivation of  $a + kek$   
It's really easy to find:  
 $(a + kek)' =$   
= 2.000

**10 step:** Finding a derivation of  $\cos(a + kek)$   
What if:  
 $(\cos(a + kek))' = \dots = \text{[top secret]} = \dots =$   
=  $2.000 \cdot (-1.000) \cdot \sin(a + kek)$

**11 step:** Finding a derivation of  $\cos(a + kek) + \ln(1.000 + x \cdot kek)$   
You should be aware of the fact that:  
 $(\cos(a + kek) + \ln(1.000 + x \cdot kek))' =$   
=  $2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$

So the 1 derivation of the expression is:  
 $2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
Let's find **the 2 derivation** of the expression:  
**1 step:** Finding a derivation of  $x$   
A true prince must know that:  
 $(x)' =$   
= 1.000

**2 step:** Finding a derivation of  $kek$   
For centuries, people have hunted for the secret knowledge that:  
 $(kek)' =$   
= 1.000

**3 step:** Finding a derivation of  $kek + x$   
I spend the hole of my life to find the answer and finally it's:  
 $(kek + x)' = \dots = \text{[top secret]} = \dots =$   
= 2.000

**4 step:** Finding a derivation of  $kek$   
Never say it to girls:  
 $(kek)' =$   
= 1.000

**5 step:** Finding a derivation of  $x$   
It's really easy to find:  
 $(x)' =$   
= 1.000

**6 step:** Finding a derivation of  $x \cdot kek$   
Sometimes I hear the same voice in my head, it always says:  
 $(x \cdot kek)' = \dots = \text{[top secret]} = \dots =$   
=  $kek + x$

**7 step:** Finding a derivation of 1.000  
Even my two-aged sister knows that:  
 $(1.000)' =$   
= 0.000

**8 step:** Finding a derivation of  $1.000 + x \cdot kek$   
Only by using special skills we might know::  
 $(1.000 + x \cdot kek)' =$   
=  $kek + x$

**9 step:** Finding a derivation of 1.000  
My friends always beat me, because I didn't know that:  
 $(1.000)' = \dots = \text{[top secret]} = \dots =$   
= 0.000

**10 step:** Finding a derivation of  $\frac{1.000}{1.000+x \cdot kek}$   
A true prince must know that:  
 $(\frac{1.000}{1.000+x \cdot kek})' = \dots = \text{[top secret]} = \dots =$   
=  $\frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}}$

**11 step:** Finding a derivation of  $\frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
Sometimes I hear the same voice in my head, it always says:  
 $(\frac{1.000}{1.000+x \cdot kek} \cdot (kek + x))' =$   
=  $\frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek}$

**12 step:** Finding a derivation of  $kek$

Only by using special skills we might know::  
 $(kek)' = \dots = \text{[top secret]} = \dots = 1.000$   
**13 step:** Finding a derivation of  $a$   
 While preparing for exams, I learned a lot of new things, for example:  
 $(a)' = 1.000$   
**14 step:** Finding a derivation of  $a + kek$   
 She: please, never speak with my dad about math... Me: ok) Also me after homework of matan:  
 $(a + kek)' = \dots = \text{[top secret]} = \dots = 2.000$   
**15 step:** Finding a derivation of  $\sin(a + kek)$   
 My roommate mumbled it in his sleep all night:  
 $(\sin(a + kek))' = \dots = \text{[top secret]} = \dots = 2.000 \cdot \cos(a + kek)$   
**16 step:** Finding a derivation of  $-1.000$   
 A true prince must know that:  
 $(-1.000)' = \dots = \text{[top secret]} = \dots = 0.000$   
**17 step:** Finding a derivation of  $(-1.000) \cdot \sin(a + kek)$   
 A true prince must know that:  
 $((-1.000) \cdot \sin(a + kek))' = (-1.000) \cdot 2.000 \cdot \cos(a + kek)$   
**18 step:** Finding a derivation of  $2.000$   
 If someone asked me that in the middle of the night, I wouldn't hesitate to say:  
 $(2.000)' = 0.000$   
**19 step:** Finding a derivation of  $2.000 \cdot (-1.000) \cdot \sin(a + kek)$   
 When I was a child, my father always told me: "Remember, son:  
 $(2.000 \cdot (-1.000) \cdot \sin(a + kek))' = \dots = \text{[top secret]} = \dots = 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek)$   
**20 step:** Finding a derivation of  $2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$   
 thanks to the results of my colleagues' scientific work, I know that:  
 $(2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x))' = 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek}$   
 So the 2 derivation of the expression is:  
 $2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek}$   
**Finally... The 2 derivation of the expression:**  
 $f^{(2)}(a, kek, x) = 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek}$   
 BRITISH SCIENTISTS WERE SHOCKED AGAIN, WHEN THEY COUNT THE 2 DERIVATION OF THIS EXPRESSION!!!  
 In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it's value = 2.77280

**Finding partical derivations** Partial derivation of the expression on the variable a:  
 $\frac{\partial f}{\partial a} = (-1.000) \cdot \sin(a + 13.000)$   
 In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it's value = 0.42008 !!!  
 Partial derivation of the expression on the variable kek:  
 $\frac{\partial f}{\partial kek} = (-1.000) \cdot \sin(3.142 + kek) + \frac{1.000}{1.000+kek}$   
 In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it's value = 0.49151 !!!  
 Partial derivation of the expression on the variable x:  
 $\frac{\partial f}{\partial x} = 13.000 \cdot \frac{1.000}{1.000+13.000 \cdot x}$   
 In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it's value = 0.92857 !!!

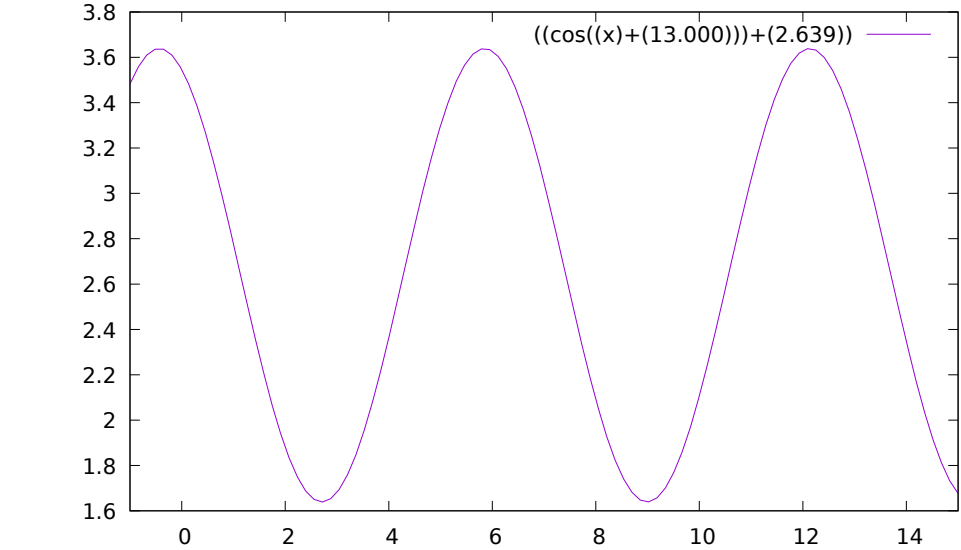
**Finding full derivation** Full derivation:  
 $\sqrt{((-1.000) \cdot \sin(a + 13.000))^{2.000} + ((-1.000) \cdot \sin(3.142 + kek) + \frac{1.000}{1.000+kek})^{2.000} + (13.000 \cdot \frac{1.000}{1.000+13.000 \cdot x})^{2.000}}$   
 In the point  $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$  it's value = 1.13150 !!!

## 4 Exploration the expression as a function of the first variable

Now let's consider the expression as a function of the first variable a:  $f(a) = \cos(a + 13.000) + 2.639$

**Decomposing on Macloren's formula** **Maklorems formula for  $a \rightarrow a_0 = 3.142$ :**  
 $f(a) = 1.732 + 0.420 \cdot (a - 3.142) + 0.454 \cdot (a - 3.142)^{2.000} + (-0.070) \cdot (a - 3.142)^{3.000} + o((a - 3.142)^{3.000})$

**Graphics** **Graph**  $f(a) = \cos(a + 13.000) + 2.639$  on the diapasone  $a \in [-1 : 15]$  :



**Equations in the point    Tangent equation** in the point  $a_0 = 0.200$ :

$f(a) = (-0.592) \cdot (a - 0.200) + 3.445$

**Normal equation** in the point  $a_0 = 0.200$ :

$f(a) = 1.689 \cdot (a - 0.200) + 3.445$

Their graphs in  $\delta = 2.50000$  coverage of the point  $a_0 = 0.200000$



5 Conclusion

*Ultrarcringeconclusionhere :*