

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 + kek / 1.000AbObA) + ln(1.000 + x · kek · (1.000ln e - 0.000))

Firstly, let's insert all constants:

f(a, kek, x) = cos(a + kek / 1.0001337.229) + ln(1.000 + x · kek · (1.000ln 2.718) - 0.000))

And simplify this expression (if possible):

f(a, kek, x) = cos(a + kek) + ln(1.000 + x · kek)

3 Exploration the expression as a function of multiple variables

- Calculation a value of function in the point

BRITISH SCIENTISTS WERE SHOCKED, WHEN THEY COUNT IT!!!  
In the point M0(a0, kek0, x0) = (3.142, 13.000, 1.000) expression's value = 1.73157

- Finding the first derivation of function

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 · kek  
Never say it to girls:

(x · kek)' =  
  
= kek + x

4 step: Finding a derivation of 1.000  
Only by using special skills we might know::

(1.000)' = ... = [top secret] = ... =  
  
= 0.000

5 step: Finding a derivation of 1.000 + x · kek  
What if:

(1.000 + x · kek)' =  
  
= kek + x

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

$$\begin{aligned} (\ln(1.000 + x \cdot kek))' &= \\ &= \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x) \end{aligned}$$

**7 step:** Finding a derivation of  $kek$   
The first task in MIPT was to calculate:

$$\begin{aligned} (kek)' &= \\ &= 1.000 \end{aligned}$$

**8 step:** Finding a derivation of  $a$   
Never say it to girls:

$$\begin{aligned} (a)' &= \\ &= 1.000 \end{aligned}$$

**9 step:** Finding a derivation of  $a + kek$   
It's simple as fuck:

$$\begin{aligned} (a + kek)' &= \dots = \text{[top secret]} = \dots = \\ &= 2.000 \end{aligned}$$

**10 step:** Finding a derivation of  $\cos(a + kek)$   
As we know:

$$\begin{aligned} (\cos(a + kek))' &= \\ &= 2.000 \cdot (-1.000) \cdot \sin(a + kek) \end{aligned}$$

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

$$\begin{aligned} (\cos(a + kek) + \ln(1.000 + x \cdot kek))' &= \\ &= 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x) \end{aligned}$$

Congratulations! **The first derivation of the expression** is:

$$\begin{aligned} f'(a, kek, x) &= 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x) \\ \text{In the point } M_0(a_0, kek_0, x_0) &= (3.142, 13.000, 1.000) \text{ it's value} = 1.84017 \end{aligned}$$

**- 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:

$$\begin{aligned} (kek)' &= \dots = \text{[top secret]} = \dots = \\ &= 1.000 \end{aligned}$$

**2 step:** Finding a derivation of  $x$   
Even my two-aged sister knows that:

$$\begin{aligned} (x)' &= \\ &= 1.000 \end{aligned}$$

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

$$\begin{aligned} (x \cdot kek)' &= \\ &= kek + x \end{aligned}$$

**4 step:** Finding a derivation of 1.000  
When I was a child, my father always told me: "Remember, son:

$$\begin{aligned} (1.000)' &= \\ &= 0.000 \end{aligned}$$

**5 step:** Finding a derivation of  $1.000 + x \cdot kek$   
I have no words to describe this fact:

$$\begin{aligned}(1.000 + x \cdot kek)' &= \dots = \text{[top secret]} = \dots = \\ &= kek + x\end{aligned}$$

**6 step:** Finding a derivation of  $\ln(1.000 + x \cdot kek)$   
My roommate mumbled it in his sleep all night:

$$\begin{aligned}(\ln(1.000 + x \cdot kek))' &= \dots = \text{[top secret]} = \dots = \\ &= \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x)\end{aligned}$$

**7 step:** Finding a derivation of  $kek$   
I have no words to describe this fact:

$$\begin{aligned}(kek)' &= \dots = \text{[top secret]} = \dots = \\ &= 1.000\end{aligned}$$

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

$$\begin{aligned}(a)' &= \\ &= 1.000\end{aligned}$$

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

$$\begin{aligned}(a + kek)' &= \\ &= 2.000\end{aligned}$$

**10 step:** Finding a derivation of  $\cos(a + kek)$   
What if:

$$\begin{aligned}(\cos(a + kek))' &= \dots = \text{[top secret]} = \dots = \\ &= 2.000 \cdot (-1.000) \cdot \sin(a + kek)\end{aligned}$$

**11 step:** Finding a derivation of  $\cos(a + kek) + \ln(1.000 + x \cdot kek)$   
You should be aware of the fact that:

$$\begin{aligned}(\cos(a + kek) + \ln(1.000 + x \cdot kek))' &= \\ &= 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x)\end{aligned}$$

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:

$$\begin{aligned}(x)' &= \\ &= 1.000\end{aligned}$$

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

$$\begin{aligned}(kek)' &= \\ &= 1.000\end{aligned}$$

**3 step:** Finding a derivation of  $kek + x$   
I spend the hole of my life to find the answer and finally it's:

$$\begin{aligned}(kek + x)' &= \dots = \text{[top secret]} = \dots = \\ &= 2.000\end{aligned}$$

**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:

$$\begin{aligned} (-1.000)' &= \dots = \text{[top secret]} = \dots = \\ &= 0.000 \end{aligned}$$

17 **step**: Finding a derivation of  $(-1.000) \cdot \sin(a + kek)$   
A true prince must know that:

$$\begin{aligned} ((-1.000) \cdot \sin(a + kek))' &= \\ &= (-1.000) \cdot 2.000 \cdot \cos(a + kek) \end{aligned}$$

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:

$$\begin{aligned} (2.000)' &= \\ &= 0.000 \end{aligned}$$

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:

$$\begin{aligned} (2.000 \cdot (-1.000) \cdot \sin(a + kek))' &= \dots = \text{[top secret]} = \dots = \\ &= 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) \end{aligned}$$

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:

$$\begin{aligned} (2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x))' &= \\ &= 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek} \end{aligned}$$

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:**

$$\begin{aligned} f^{(2)}(\text{a, kek, x}) &= 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek} \\ \text{BRITISH SCIENTISTS WERE SHOCKED AGAIN, WHEN THEY COUNT THE 2 DERIVATION OF THIS EXPRESSION!!!} \\ \text{In the point } M_0(a_0, kek_0, x_0) &= (3.142, 13.000, 1.000) \text{ it's value} = 2.77280 \end{aligned}$$

**Finding partial derivations**    Partial derivation of the expression on the variable a:

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

**Finding full derivation**    Full derivation:

$$\begin{aligned} &\sqrt{((-1.000) \cdot \sin(a + 13.000))^{2.000} + ((-1.000) \cdot \sin(3.142 + kek) + \frac{1.000}{1.000+kek})^{2.000} + (13.000 \cdot \frac{1.000}{1.000+13.000 \cdot x})^{2.000}} \\ \text{In the point } M_0(a_0, kek_0, x_0) &= (3.142, 13.000, 1.000) \text{ it's value} = 1.13150 \text{ !!!} \end{aligned}$$

## 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:  $f(\text{a}) = \cos(a + 13.000) + 2.639$

**Decomposing on Macloren's formula**    **Maklorems formula for  $a \rightarrow a_0 = 3.142$ :**

$$f(\text{a}) = 1.732 + 0.420 \cdot (a - 3.142) + 0.454 \cdot (a - 3.142)^{2.000} + (-0.070) \cdot (a - 3.142)^{3.000} + o((a - 3.142)^{3.000})$$

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



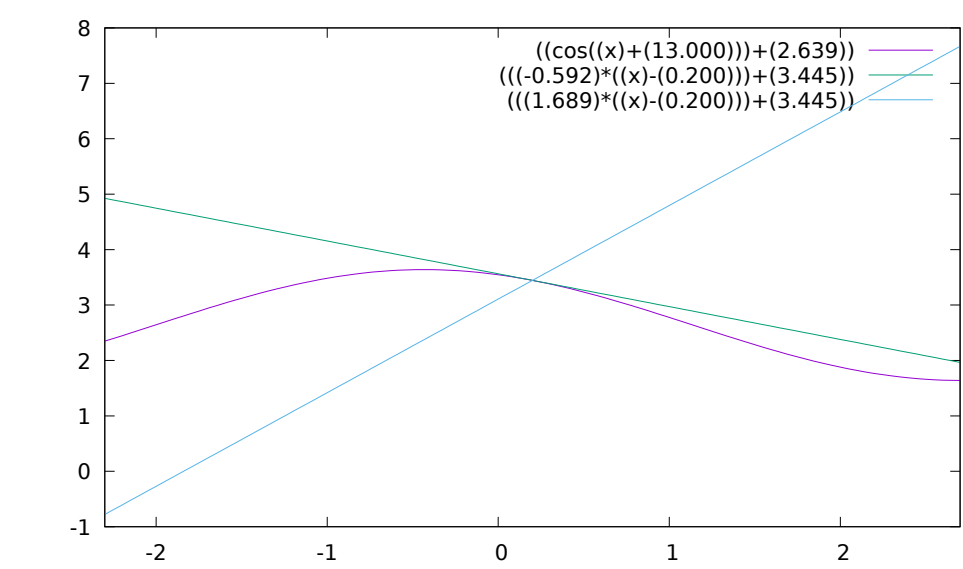
**Equations in the point**   **Tangent equation** in the point  $a_0 = 0.200$ :

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

**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 :*