

1 Introduction

CrInGeCrInGeProduction.Superccrgeintroductionhere :

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 $1.000 + x \cdot kek$

What if:

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

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:

$$f'(a, kek, x) = 2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000 + x \cdot kek} \cdot (kek + x)$$

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

1) Let's find **the 1 derivation** of the given function:

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 function is:

$$2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$$

2) Let's find **the 2 derivation** of the given function:

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:

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

5 step: Finding a derivation of x

It's really easy to find:

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

6 step: Finding a derivation of $x \cdot kek$

Sometimes I hear the same voice in my head, it always says:

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

7 step: Finding a derivation of 1.000

Even my two-aged sister knows that:

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

8 step: Finding a derivation of $1.000 + x \cdot kek$

Only by using special skills we might know::

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

9 step: Finding a derivation of 1.000

My friends always beat me, because I didn't know that:

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

10 step: Finding a derivation of $\frac{1.000}{1.000+x \cdot kek}$

A true prince must know that:

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

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:

$$\begin{aligned} & \left(\frac{1.000}{1.000+x \cdot kek} \cdot (kek + x) \right)' = \\ &= \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^2 \cdot 000} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek} \end{aligned}$$

12 step: Finding a derivation of kek

Only by using special skills we might know::

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

13 step: Finding a derivation of a

While preparing for exams, I learned a lot of new things, for example:

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

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:

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

15 step: Finding a derivation of $\sin(a + kek)$

My roommate mumbled it in his sleep all night:

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

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:

$$\begin{aligned} (2.000 \cdot (-1.000) \cdot \sin(a + kek) + \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x))' &= \\ &= 2.000 \cdot (-1.000) \cdot 2.000 \cdot \cos(a + kek) + \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^2 \cdot 000} \cdot (kek + x) + 2.000 \cdot \frac{1.000}{1.000+x \cdot kek} \end{aligned}$$

So **the 2 derivation** of the function 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, BECAUSE THEY COUNT THE 2 DERIVATION OF THIS FUNCTION!!!

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

Partcial 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 !!!**

Partcial 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 !!!**

Partcial 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

In this part of the article let's consider the expression as a function of the first variable a:

$$f(a) = \cos(a + 13.000) + 2.639$$

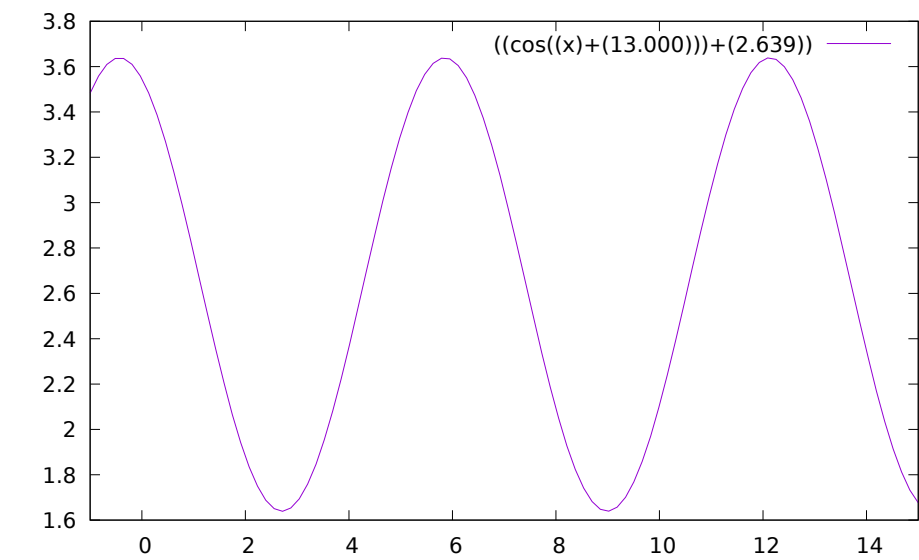
- Decomposing on Macloren's formula

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

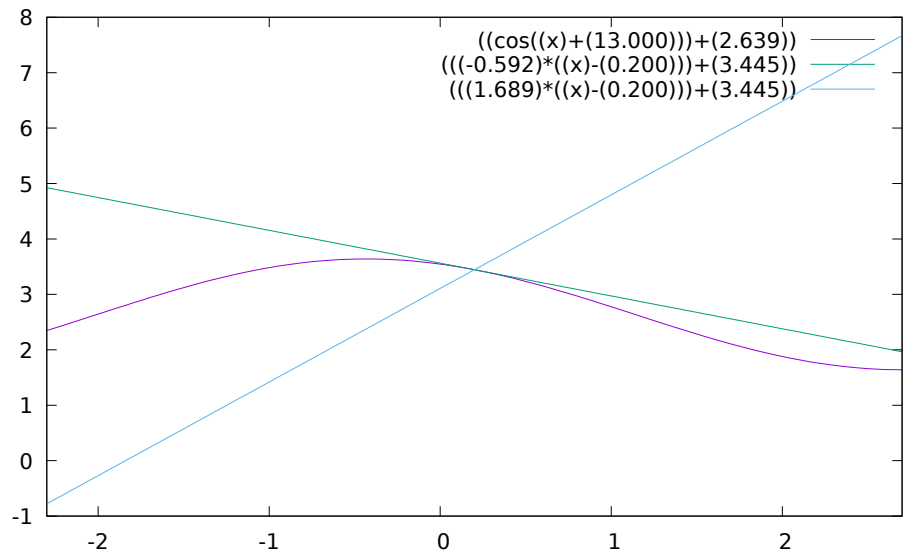


- Equations in the point

Tangent equation in $a_0 = 0.200$:
 $f(a) = (-0.592) \cdot (a - 0.200) + 3.445$

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

Ultracringeconclusionhere :