

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
Tangent point = 0.200000
Delta coverage of tangent point = 2.500000
Graph diapason = [-1 : 15]

So let's calculate smth with a given function:

f(a, kek, x) = cos(a + kek / 1.000^AbObA) + ln(1.000 + x * kek * (1.000^(ln e) - 0.000))

Firstly, let's insert all constants:

f(a, kek, x) = cos(a + kek / 1.000^1337.229) + ln(1.000 + x * kek * (1.000^(ln 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!

[11pt]1 step: Finding a derivation of kek

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

(kek)' =

= 1.000

[11pt]2 step: Finding a derivation of x

Only after two cups of beer you might understand it:

(x)' =

= 1.000

[11pt]3 step: Finding a derivation of x * kek

Never say it to girls:

(x * kek)' =

= kek + x

[11pt]4 step: Finding a derivation of 1.000

Only by using special skills we might know::

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

= 0.000

[11pt]5 step: Finding a derivation of 1.000 + x * kek

What if:

$$(1.000 + x \cdot kek)' =$$

$$= kek + x$$

[11pt]6 **step:** Finding a derivation of $\ln(1.000 + x \cdot kek)$

Even my two-aged sister knows that:

$$(\ln(1.000 + x \cdot kek))' =$$

$$= \frac{1.000}{1.000+x \cdot kek} \cdot (kek + x)$$

[11pt]7 **step:** Finding a derivation of kek

The first task in MIPT was to calculate:

$$(kek)' =$$

$$= 1.000$$

[11pt]8 **step:** Finding a derivation of a

Never say it to girls:

$$(a)' =$$

$$= 1.000$$

[11pt]9 **step:** Finding a derivation of $a + kek$

It’s simple as fuck:

$$(a + kek)' = \dots = \text{[top secret]} = \dots =$$

$$= 2.000$$

[11pt]10 **step:** Finding a derivation of $\cos(a + kek)$

As we know:

$$(\cos(a + kek))' =$$

$$= 2.000 \cdot (-1.000) \cdot \sin(a + kek)$$

[11pt]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

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

[11pt]1 **step:** Finding a derivation of kek

Only after two cups of beer you might understand it:

$$(kek)' = \dots = \text{[top secret]} = \dots =$$

$$= 1.000$$

[11pt]2 **step:** Finding a derivation of x

Even my two-aged sister knows that:

$$(x)' =$$

$$= 1.000$$

[11pt]3 **step:** Finding a derivation of $x \cdot kek$

Even my two-aged sister knows that:

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

[11pt]4 **step:** Finding a derivation of 1.000

When I was a child, my father always told me: "Remember, son:

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

[11pt]5 **step:** Finding a derivation of $1.000 + x \cdot kek$

I have no words to describe this fact:

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

[11pt]6 **step:** Finding a derivation of $\ln(1.000 + x \cdot kek)$

My roommate mumbled it in his sleep all night:

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

[11pt]7 **step:** Finding a derivation of kek

I have no words to describe this fact:

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

[11pt]8 **step:** Finding a derivation of a

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

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

[11pt]9 **step:** Finding a derivation of $a + kek$

It's really easy to find:

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

[11pt]10 **step:** Finding a derivation of $\cos(a + kek)$

What if:

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

[11pt]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:

[11pt]1 **step:** Finding a derivation of x

A true prince must know that:

$$(x)' =$$

$$= 1.000$$

[11pt]2 **step:** Finding a derivation of kek

For centuries, people have hunted for the secret knowledge that:

$$(kek)' =$$

$$= 1.000$$

[11pt]3 **step:** Finding a derivation of $kek + x$

I spend the hole of my life to find the answer and finally it’s:

$$(kek + x)' = \textcolor{red}{\dots} = \textcolor{red}{[\text{top secret}]} = \textcolor{red}{\dots} =$$

$$= 2.000$$

[11pt]4 **step:** Finding a derivation of kek

Never say it to girls:

$$(kek)' =$$

$$= 1.000$$

[11pt]5 **step:** Finding a derivation of x

It’s really easy to find:

$$(x)' =$$

$$= 1.000$$

[11pt]6 **step:** Finding a derivation of $x \cdot kek$

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

$$(x \cdot kek)' = \textcolor{red}{\dots} = \textcolor{red}{[\text{top secret}]} = \textcolor{red}{\dots} =$$

$$= kek + x$$

[11pt]7 **step:** Finding a derivation of 1.000

Even my two-aged sister knows that:

$$(1.000)' =$$

$$= 0.000$$

[11pt]8 **step:** Finding a derivation of $1.000 + x \cdot kek$

Only by using special skills we might know::

$$(1.000 + x \cdot kek)' =$$

$$= kek + x$$

[11pt]9 **step:** Finding a derivation of 1.000

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

$$(1.000)' = \textcolor{red}{\dots} = \textcolor{red}{[\text{top secret}]} = \textcolor{red}{\dots} =$$

$$= 0.000$$

[11pt]10 **step:** Finding a derivation of $\frac{1.000}{1.000+x \cdot kek}$

A true prince must know that:

$$(\frac{1.000}{1.000+x \cdot kek})' = \textcolor{red}{\dots} = \textcolor{red}{[\text{top secret}]} = \textcolor{red}{\dots} =$$

$$= \frac{(-1.000) \cdot (kek+x)}{(1.000+x \cdot kek)^{2.000}}$$

[11pt]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:

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

[11pt]12 **step:** Finding a derivation of kek

Only by using special skills we might know::

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

[11pt]13 **step:** Finding a derivation of a

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

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

[11pt]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:

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

[11pt]15 **step:** Finding a derivation of $\sin(a+kek)$

My roommate mumbled it in his sleep all night:

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

[11pt]16 **step:** Finding a derivation of -1.000

A true prince must know that:

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

[11pt]17 **step:** Finding a derivation of $(-1.000) \cdot \sin(a+kek)$

A true prince must know that:

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

[11pt]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:

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

[11pt]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:

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

[11pt]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 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, 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 !!!

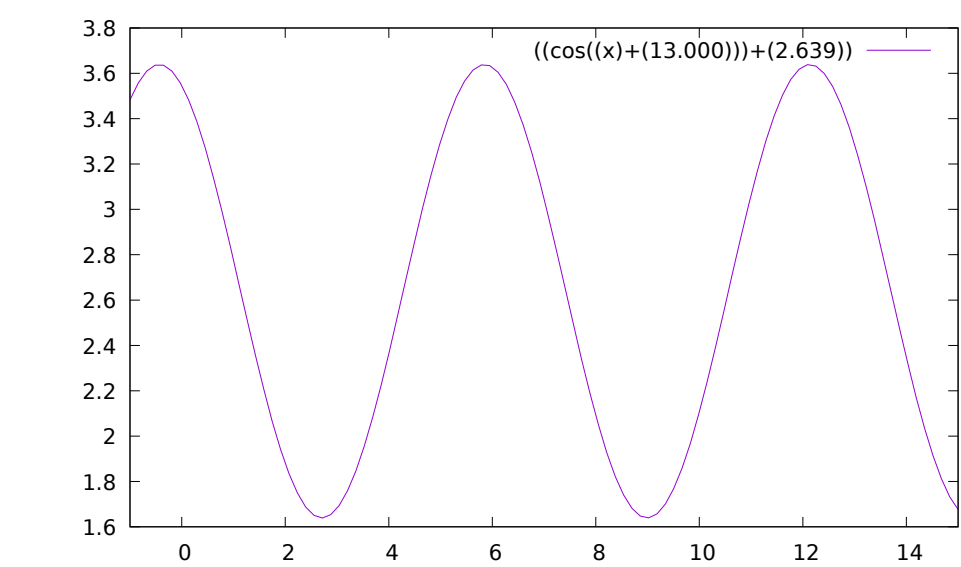
4 Exploration the expression as a function of the first variable

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 Maklorens formula for $a \rightarrow a_0 = 3.142$:

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

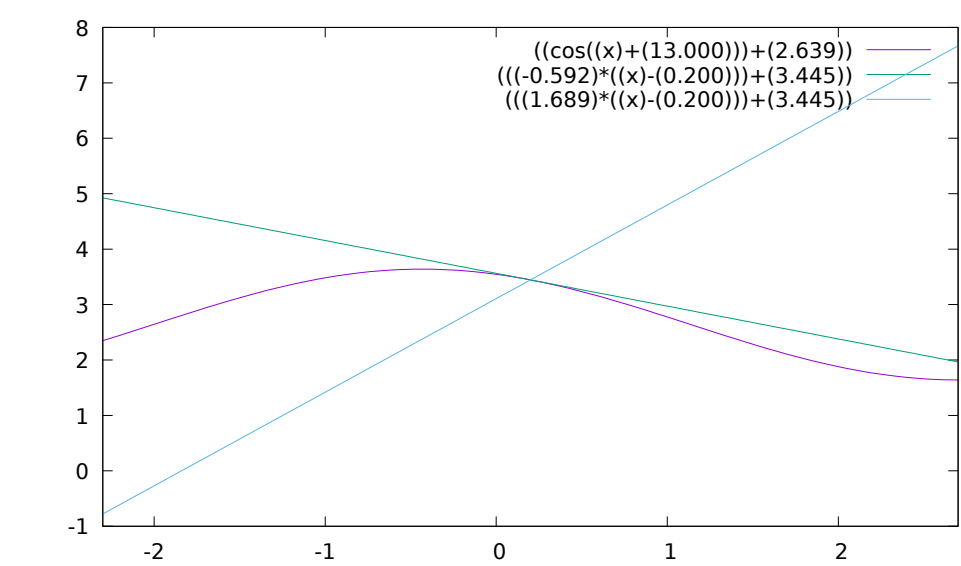
Graphics Graph $f(a) = \cos(a + 13.000) + 2.639$ on the diapasone $a \in [-1 : 15]$:



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 :