1 Introduction

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:

$$f(a, kek, x) = \cos\left(a + \frac{kek}{1.000^{AbObA}}\right) + \ln\left(1.000 + x \cdot kek \cdot (1.000^{(\ln e)} - 0.000)\right)$$

Firstly, let's insert all constants:

$$f(a, kek, x) = \cos\left(a + \frac{kek}{1.000^{1337.229}}\right) + \ln\left(1.000 + x \cdot kek \cdot (1.000^{(\ln 2.718)} - 0.000)\right)$$

And simplify this expression (if possible):

$$f(a, kek, x) = \cos\left(a + kek\right) + \ln\left(1.000 + x \cdot kek\right)$$

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 $M_0(a_0, kek_0, x_0) = (3.142, 13.000, 1.000)$ 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 $x \cdot kek$
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::

$(1.000)' = ... = [\text{top secret}] = ... =$

$= 0.000$

`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 $\ln\left(1.000 + x \cdot kek\right)$
Even my two-aged sister knows that:

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

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

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:

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

$$= 2.000$$

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:

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

$$= 1.000$$

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:

$$(1.000 + x \cdot kek)' = ... = [\text{top secret}] = ... =$$

$$= kek + x$$

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

$$(\ln(1.000 + x \cdot kek))' = ... = [\text{top secret}] = ... =$$

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

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

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

$$= 1.000$$

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:

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

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

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

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:

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

$= 2.000$

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:

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

$= kek + x$

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:

$(1.000)' = \ldots = [\text{top secret}] = \ldots =$

$= 0.000$

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

A true prince must know that:

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

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

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::

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

$= 1.000$

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:

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

$= 2.000$

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

My roommate mumbled it in his sleep all night:

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

$= 2.000 \cdot \cos(a + kek)$

16 step: Finding a derivation of -1.000

A true prince must know that:

$(-1.000)' = ... = [\text{top secret}] = ... =$

$= 0.000$

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:

$(2.000 \cdot (-1.000) \cdot \sin(a + kek))' = ... = [\text{top secret}] = ... =$

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

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 $= 1.13150$!!!
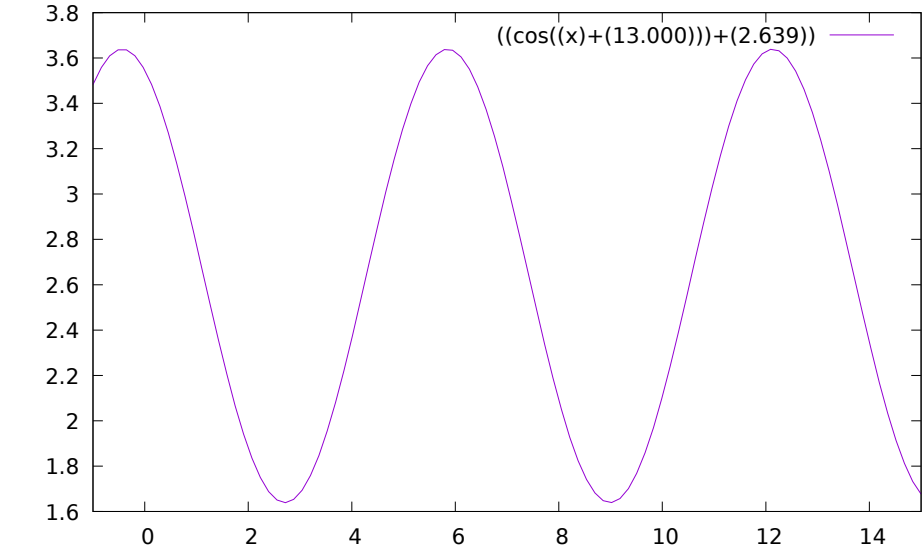
4   Exploration the expression as a function of the first variable

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   **Maklorens formula for** $a \to a_0 = 3.142$:
    $f(a) = 1.732 + 0.420 \cdot (a-3.142) + 0.454 \cdot (a-3.142)^{2.000} + (-0.070) \cdot (a-3.142)^{3.000} + o((a-3.142)^{3.000})$

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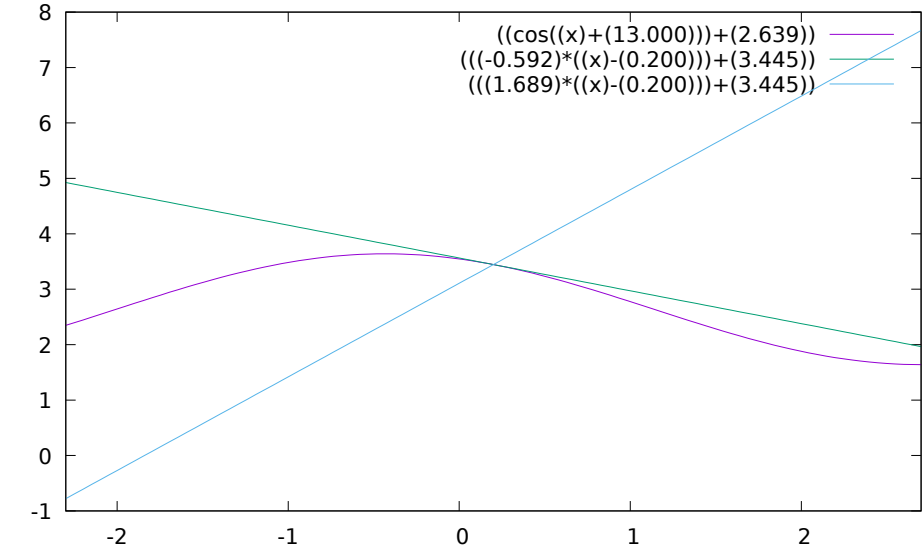

Equations in the point   **Tangent equation** in the point $a_0 = 0.200$:
    $f(a) = (-0.592) \cdot (a-0.200) + 3.445$
    Normal equation in the point $a_0 = 0.200$:
    $f(a) = 1.689 \cdot (a-0.200) + 3.445$
    Their graphs in $\delta = 2.50000$ coverage of the point $a_0 = 0.200000$

5   Conclusion

$Ultrarcringeconclusionhere$: