1 Some basic knowledge about researching problem...

Parameters and constants we use in this work:

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

Variables (1):
x = 8.000000

Parameters of exploration :
Number of differentials = 4
Macloren's accuracy = 3
Tanget point = 3.000000
Delta coverage of tangent point = 2.500000
Graph diapasone = [−10 : 10]

So let's calculate smth with a given function:

$$f(x) = (\cos x)^{3.000}$$

Firstly, let's simplify this expression (if possible):

$$f(x) = (\cos x)^{3.000}$$

2 Exploration the expression

- Calculation a value of function in the point

BRITISH SCIENTISTS WERE SHOCKED, WHEN THEY COUNT IT?!!
In the point $M_0(x_0) = (8.000)$ expression's value = -0.00308

- 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 x

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

$(x)' =$

$= 1.000$

2 `step:` Finding a derivation of $\cos x$

Only after two cups of beer you might understand it:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

3 `step:` Finding a derivation of $(\cos x)^{3.000}$

Never say it to girls:

$((\cos x)^{3.000})' =$

$= 3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$

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

$$f'(x) = 3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$$

In the point $M_0(x_0) = (8.000)$ **it's value = -0.06283**

- Finding the 4 derivation

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

1 `step:` Finding a derivation of x

Only by using special skills we might know::

$(x)' = \ldots =$ [top secret] $= \ldots =$

$= 1.000$

2 `step:` Finding a derivation of $\cos x$

What if:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

3 `step:` Finding a derivation of $(\cos x)^{3.000}$

Even my two-aged sister knows that:

$((\cos x)^{3.000})' =$

$= 3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$

So **the 1 derivation** of the function is:

$$3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$$

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

1 `step:` Finding a derivation of x

The first task in MIPT was to calculate:

$(x)' =$

$= 1.000$

2 `step:` Finding a derivation of $\sin x$

Never say it to girls:

$(\sin x)' =$

$= \cos x$

3 `step:` Finding a derivation of -1.000

It's simple as fuck:

$(-1.000)' = \ldots =$ [top secret] $= \ldots =$

$= 0.000$

4 `step:` Finding a derivation of $(-1.000) \cdot \sin x$

As we know:

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

5 `step:` Finding a derivation of x

I was asked not to tell anyone that:

$(x)' =$

$= 1.000$

6 `step:` Finding a derivation of $\cos x$

Only after two cups of beer you might understand it:

$(\cos x)' = \ldots =$ [top secret] $= \ldots =$

$= (-1.000) \cdot \sin x$

7 `step:` Finding a derivation of $(\cos x)^{2.000}$

Even my two-aged sister knows that:

$((\cos x)^{2.000})' =$

$= 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

8 `step:` Finding a derivation of 3.000

Even my two-aged sister knows that:

$(3.000)' =$

$= 0.000$

9 `step:` Finding a derivation of $3.000 \cdot (\cos x)^{2.000}$

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

$(3.000 \cdot (\cos x)^{2.000})' =$

$= 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

10 `step:` Finding a derivation of $3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$

I have no words to describe this fact:

$(3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x)' = \ldots =$ [top secret] $= \ldots =$

$= 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000}$

So **the 2 derivation** of the function is:

$$3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000}$$

3) Let's find **the 3 derivation** of the given function:

1 `step:` Finding a derivation of x

My roommate mumbled it in his sleep all night:

$(x)' = \ldots =$ [top secret] $= \ldots =$

$= 1.000$

2 `step:` Finding a derivation of $\cos x$

I have no words to describe this fact:

$(\cos x)' = \ldots =$ [top secret] $= \ldots =$

$= (-1.000) \cdot \sin x$

3 `step:` Finding a derivation of $(\cos x)^{2.000}$

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

$((\cos x)^{2.000})' =$

$= 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

4 `step:` Finding a derivation of 3.000

It's really easy to find:

$(3.000)' =$

$= 0.000$

5 `step:` Finding a derivation of $3.000 \cdot (\cos x)^{2.000}$

What if:

$(3.000 \cdot (\cos x)^{2.000})' = \ldots =$ [top secret] $= \ldots =$

$= 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

6 `step:` Finding a derivation of x

You should be aware of the fact that:

$(x)' =$

$= 1.000$

7 `step:` Finding a derivation of $\cos x$

A true prince must know that:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

8 `step:` Finding a derivation of -1.000

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

$(-1.000)' =$

$= 0.000$

9 `step:` Finding a derivation of $(-1.000) \cdot \cos x$

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

$((-1.000) \cdot \cos x)' = \ldots =$ [top secret] $= \ldots =$

$= (-1.000) \cdot (-1.000) \cdot \sin x$

10 `step:` Finding a derivation of $(-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000}$

Never say it to girls:

$((-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000})' =$

$= (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

11 `step:` Finding a derivation of x

It's really easy to find:

$(x)' =$

$= 1.000$

12 `step:` Finding a derivation of $\sin x$

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

$(\sin x)' = \ldots =$ [top secret] $= \ldots =$

$= \cos x$

13 `step:` Finding a derivation of -1.000

Even my two-aged sister knows that:

$(-1.000)' =$

$= 0.000$

14 `step:` Finding a derivation of $(-1.000) \cdot \sin x$

Only by using special skills we might know::

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

15 `step:` Finding a derivation of x

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

$(x)' = \ldots =$ [top secret] $= \ldots =$

$= 1.000$

16 `step:` Finding a derivation of $\sin x$

A true prince must know that:

$(\sin x)' = \ldots =$ [top secret] $= \ldots =$

$= \cos x$

17 `step:` Finding a derivation of -1.000

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

$(-1.000)' =$

$= 0.000$

18 `step:` Finding a derivation of $(-1.000) \cdot \sin x$

Only by using special skills we might know::

$((-1.000) \cdot \sin x)' = \ldots =$ [top secret] $= \ldots =$

$= (-1.000) \cdot \cos x$

19 `step:` Finding a derivation of x

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

$(x)' =$

$= 1.000$

20 `step:` Finding a derivation of $\cos x$

She: please, never speak with my dad about math... Me: ok) Also me after homework of matan:

$(\cos x)' = \ldots =$ [top secret] $= \ldots =$

$= (-1.000) \cdot \sin x$

21 `step:` Finding a derivation of 2.000

My roommate mumbled it in his sleep all night:

$(2.000)' = \ldots =$ [top secret] $= \ldots =$

$= 0.000$

22 `step:` Finding a derivation of $2.000 \cdot \cos x$

A true prince must know that:

$(2.000 \cdot \cos x)' = \ldots =$ [top secret] $= \ldots =$

$= 2.000 \cdot (-1.000) \cdot \sin x$

23 `step:` Finding a derivation of $2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

A true prince must know that:

$(2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x$

24 `step:` Finding a derivation of 3.000

If someone asked me that in the middle of the night, I wouldn't hesitate to say:

$(3.000)' =$

$= 0.000$

25 `step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

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

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' = \ldots =$ [top secret] $= \ldots =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)$

26 `step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x$

thanks to the results of my colleagues' scientific work, I know that:

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

27 `step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000}$

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

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000})' = \ldots =$ [top secret] $= \ldots =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

So **the 3 derivation** of the function is:

$$3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$$

4) Let's find **the 4 derivation** of the given function:

1 `step:` Finding a derivation of x

If someone asked me that in the middle of the night, I wouldn't hesitate to say:

$(x)' =$

$= 1.000$

2 `step:` Finding a derivation of $\cos x$

A true prince must know that:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

3 `step:` Finding a derivation of -1.000

My roommate mumbled it in his sleep all night:

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

$= 0.000$

4 step: Finding a derivation of $(-1.000) \cdot \cos x$

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

$((-1.000) \cdot \cos x)' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot (-1.000) \cdot \sin x$

5 step: Finding a derivation of x

It was a tragic moment when I learned it on matan exam:

$(x)' =$

$= 1.000$

6 step: Finding a derivation of $\sin x$

Only by using special skills we might know::

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

$= \cos x$

7 step: Finding a derivation of -1.000

She: please, never speak with my dad about math... Me: ok) Also me after homework of matan:

$(-1.000)' =$

$= 0.000$

8 step: Finding a derivation of $(-1.000) \cdot \sin x$

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

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

9 step: Finding a derivation of x

A true prince must know that:

$(x)' =$

$= 1.000$

10 step: Finding a derivation of $\cos x$

Lol, i remember that:

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

$= (-1.000) \cdot \sin x$

11 step: Finding a derivation of 2.000

Lol, i remember that:

$(2.000)' =$

$= 0.000$

12 step: Finding a derivation of $2.000 \cdot \cos x$

Only after two cups of beer you might understand it:

$(2.000 \cdot \cos x)' = \ldots = [\text{top secret}] = \ldots =$

$= 2.000 \cdot (-1.000) \cdot \sin x$

13 step: Finding a derivation of $2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

As we know:

$(2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x$

14 step: Finding a derivation of 3.000

It's really easy to find:

$(3.000)' =$

$= 0.000$

15 step: Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

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

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)$

16 step: Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

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

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

17 step: Finding a derivation of x

Man... Just look:

$(x)' =$

$= 1.000$

18 step: Finding a derivation of $\cos x$

Sounds logical that it is the same as:

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

$= (-1.000) \cdot \sin x$

19 step: Finding a derivation of $(\cos x)^{2.000}$

You should be aware of the fact that:

$((\cos x)^{2.000})' =$

$= 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

20 step: Finding a derivation of 3.000

Only after two cups of beer you might understand it:

$(3.000)' =$

$= 0.000$

21 step: Finding a derivation of $3.000 \cdot (\cos x)^{2.000}$

You should be aware of the fact that:

$(3.000 \cdot (\cos x)^{2.000})' =$

$= 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

22 step: Finding a derivation of x

What if:

$(x)' =$

$= 1.000$

23 step: Finding a derivation of $\sin x$

Only after two cups of beer you might understand it:

$(\sin x)' =$

$= \cos x$

24 step: Finding a derivation of -1.000

Lol, i remember that:

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

$= 0.000$

25 step: Finding a derivation of $(-1.000) \cdot \sin x$

thanks to the results of my colleagues' scientific work, I know that:

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

26 step: Finding a derivation of -1.000

Only by using special skills we might know::

$(-1.000)' =$

$= 0.000$

27 step: Finding a derivation of $(-1.000) \cdot (-1.000) \cdot \sin x$

I have no words to describe this fact:

$((-1.000) \cdot (-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot (-1.000) \cdot \cos x$

28 step: Finding a derivation of $(-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000}$

I always try not to panic, but this thing scares me:

$((-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x$

29 step: Finding a derivation of $(-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

Even my two-aged sister knows that:

$((-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x)' =$

$= (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

30 step: Finding a derivation of x

If someone asked me that in the middle of the night, I wouldn't hesitate to say:

$(x)' =$

$= 1.000$

31 step: Finding a derivation of $\sin x$

It's simple as fuck:

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

$= \cos x$

32 step: Finding a derivation of -1.000

I always try not to panic, but this thing scares me:

$(-1.000)' =$

$= 0.000$

33 step: Finding a derivation of $(-1.000) \cdot \sin x$

Sounds logical that it is the same as:

$((-1.000) \cdot \sin x)' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot \cos x$

34 step: Finding a derivation of x

thanks to the results of my colleagues' scientific work, I know that:

$(x)' =$

$= 1.000$

35 step: Finding a derivation of $\cos x$

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

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

36 step: Finding a derivation of 2.000

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

$(2.000)' = \ldots = [\text{top secret}] = \ldots =$

$= 0.000$

37 step: Finding a derivation of $2.000 \cdot \cos x$

It's really easy to find:

$(2.000 \cdot \cos x)' =$

$= 2.000 \cdot (-1.000) \cdot \sin x$

38 step: Finding a derivation of $2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

I have no words to describe this fact:

$(2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x$

39 step: Finding a derivation of 3.000

A true prince must know that:

$(3.000)' =$

$= 0.000$

40 step: Finding a derivation of $3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

It's really easy to find:

$(3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)$

41 step: Finding a derivation of x

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

$(x)' =$

$= 1.000$

42 step: Finding a derivation of $\cos x$

A true prince must know that:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

43 step: Finding a derivation of -1.000

She: please, never speak with my dad about math... Me: ok) Also me after homework of matan:

$(-1.000)' =$

$= 0.000$

44 step: Finding a derivation of $(-1.000) \cdot \cos x$

Lol, i remember that:

$((-1.000) \cdot \cos x)' =$

$= (-1.000) \cdot (-1.000) \cdot \sin x$

45 step: Finding a derivation of $(-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

If someone asked me that in the middle of the night, I wouldn't hesitate to say:

$((-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x$

46 step: Finding a derivation of x

Lol, i remember that:

$(x)' =$

$= 1.000$

47 step: Finding a derivation of $\sin x$

What if:

$(\sin x)' =$

$= \cos x$

48 step: Finding a derivation of -1.000

As we know:

$(-1.000)' =$

$= 0.000$

49 step: Finding a derivation of $(-1.000) \cdot \sin x$

Lol, i remember that:

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

50 step: Finding a derivation of x

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

$(x)' =$

$= 1.000$

51 step: Finding a derivation of $\cos x$

She: please, never speak with my dad about math... Me: ok) Also me after homework of matan:

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

52 step: Finding a derivation of 2.000

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

$(2.000)' =$

$= 0.000$

53 step: Finding a derivation of $2.000 \cdot \cos x$

I have no words to describe this fact:

$(2.000 \cdot \cos x)' =$

$= 2.000 \cdot (-1.000) \cdot \sin x$

54 step: Finding a derivation of x

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

$(x)' =$

$= 1.000$

55 step: Finding a derivation of $\cos x$

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

$(\cos x)' =$

$= (-1.000) \cdot \sin x$

56 step: Finding a derivation of -1.000

If someone asked me that in the middle of the night, I wouldn't hesitate to say:

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

$= 0.000$

57 step: Finding a derivation of $(-1.000) \cdot \cos x$

Children of USSR must know that:

$((-1.000) \cdot \cos x)' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot (-1.000) \cdot \sin x$

58 step: Finding a derivation of $(-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x$

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

$((-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)' =$

$= (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

59 step: Finding a derivation of x

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

$(x)' =$

$= 1.000$

60 step: Finding a derivation of $\sin x$

Never say it to girls:

$(\sin x)' =$

$= \cos x$

61 step: Finding a derivation of -1.000

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

$(-1.000)' =$

$= 0.000$

62 step: Finding a derivation of $(-1.000) \cdot \sin x$

Man... Just look:

$((-1.000) \cdot \sin x)' =$

$= (-1.000) \cdot \cos x$

63 step: Finding a derivation of x

Children of USSR must know that:

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

$= 1.000$

64 step: Finding a derivation of $\sin x$

What if:

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

$= \cos x$

65 step: Finding a derivation of -1.000

Lol, i remember that:

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

$= 0.000$

66 step: Finding a derivation of $(-1.000) \cdot \sin x$

A true prince must know that:

$((-1.000) \cdot \sin x)' = \ldots = [\text{top secret}] = \ldots =$

$= (-1.000) \cdot \cos x$

67 step: Finding a derivation of 2.000

It's simple as fuck:

$(2.000)' =$

$= 0.000$

68 step: Finding a derivation of $2.000 \cdot (-1.000) \cdot \sin x$

The first task in MIPT was to calculate:

$(2.000 \cdot (-1.000) \cdot \sin x)' =$

$= 2.000 \cdot (-1.000) \cdot \cos x$

69 step: Finding a derivation of $2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x$

As we know:

$(2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x)' =$

$= 2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x$

70 step: Finding a derivation of $2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x$

Man... Just look:

$(2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)' = \ldots = [\text{top secret}] = \ldots =$

$= 2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

71 step: Finding a derivation of 3.000

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

$(3.000)' =$

$= 0.000$

72 step: Finding a derivation of $3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x)$

A true prince must know that:

$(3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x))' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x)$

73 step: Finding a derivation of $3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x$

What if:

$(3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x$

74 step: Finding a derivation of $3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

My roommate mumbled it in his sleep all night:

$(3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x)' =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

75 step: Finding a derivation of $3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x$

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

$(3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x)' = \ldots = [\text{top secret}] = \ldots =$

$= 3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

So **the 4 derivation** of the function is:

$3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

Finally... The 4 derivation of the expression:

$f^{(4)}(x) = 3.000 \cdot (2.000 \cdot (-1.000) \cdot \cos x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot (-1.000) \cdot \sin x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 2.000 \cdot \cos x + 2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \cos x) \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \cos x \cdot 3.000 \cdot (\cos x)^{2.000} + 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot (-1.000) \cdot \sin x + 3.000 \cdot (2.000 \cdot (-1.000) \cdot \sin x \cdot (-1.000) \cdot \sin x + (-1.000) \cdot \cos x \cdot 2.000 \cdot \cos x) \cdot (-1.000) \cdot \cos x + (-1.000) \cdot (-1.000) \cdot \sin x \cdot 3.000 \cdot 2.000 \cdot \cos x \cdot (-1.000) \cdot \sin x$

BRITISH SCIENTISTS WERE SHOCKED AGAIN, BECAUSE THEY COUNT THE 4 DERIVATION OF THIS FUNCTION!!!

In the point $M_0(x_0) = (8.000)$ **it's value = 8.48050**

- Finding partical derivations

Partcial derivation of the expression on the variable **x**:

$\frac{\partial f}{\partial x} = 3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x$

In the point $M_0(x_0) = (8.000)$ **it's value = -0.06283** !!!

- Finding full derivation

Full derivation:

$\sqrt{(3.000 \cdot (\cos x)^{2.000} \cdot (-1.000) \cdot \sin x)^{2.000}}$

In the point $M_0(x_0) = (8.000)$ **it's value = 0.06283** !!!

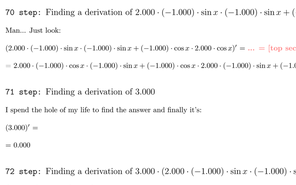
- Decomposing on Macloren's formula

Maklorens formula for $x \to x_0 = 8.000$**:**

$f(x) = (-0.003) + (-0.063) \cdot (x - 8.000) + (-0.423) \cdot (x - 8.000)^{2.000} + (-0.895) \cdot (x - 8.000)^{3.000} + o((x - 8.000)^{3.000})$

- Graphics

Graph of $f(x) = (\cos x)^{3.000}$ on the diapasone $x \in [-10 : 10]$:

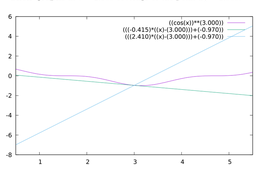


- Equations in the point

Tangent equation in $x_0 = 3.000$:
$f(x) = (-0.415) \cdot (x - 3.000) + (-0.970)$

Normal equation in $x_0 = 3.00000$:
$f(x) = 2.410 \cdot (x - 3.000) + (-0.970)$

Their graphs in $\delta = 2.500$ coverage of the point $x_0 = 3.000$:



3 Conclusion

Thanks Ded for this amazing code experience and a lot of useful advice!
Happy New Year!!! (Programming language is coming soon...