sectionIntroduction



# 1 Some basic knowledge about researching problem...

Let's calculate smth with a given function: f(x, y) = $(\sin x \cdot y)^{3.000}$

Firstly, let's simplify this expression (if possible): f(x, y) = $(\sin x \cdot y)^{3.000}$

# 2 Exploration of the expression as a function of multiple variables

**Calculation value of function in the point** BRITISH SCIENTISTS WERE SHOCKED, WHEN THEY COUNT IT!!!

In the point $M_0(x_0, y_0)$ = (3.142, 2.000) **it's value** = -0.00000

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 $y$

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

$(y)' = ... =$ [top secret] $= ... =$

$= 1.000$

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

It's really easy to find:

$(x)' = ... =$ [top secret] $= ... =$

$= 1.000$

`3 step:` Finding a derivation of $x \cdot y$

My roommate mumbled it in his sleep all night:

$(x \cdot y)' = ... =$ [top secret] $= ... =$

$= y + x$

`4 step:` Finding a derivation of $\sin x \cdot y$

Sounds logical that it is the same as:

$(\sin x \cdot y)' = ... =$ [top secret] $= ... =$

$= \cos x \cdot y \cdot (y + x)$

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

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

$((\sin x \cdot y)^{3.000})' = ... =$ [top secret] $= ... =$

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

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

f'(x, y) = $3.000 \cdot (\sin x \cdot y)^{2.000} \cdot \cos x \cdot y \cdot (y + x)$

In the point $M_0(x_0, y_0)$ = (3.142, 2.000) it's value = 0.00000

**Finding the 3 derivation** Let's find **the 1 derivation** of the expression:

`1 step:` Finding a derivation of $y$

Sounds logical that it is the same as:

$(y)' = ... =$ [top secret] $= ... =$

$= 1.000$

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

It's really easy to find:

$(x)' = ... =$ [top secret] $= ... =$

$= 1.000$

`3 step:` Finding a derivation of $x \cdot y$

My roommate mumbled it in his sleep all night:

$(x \cdot y)' = ... =$ [top secret] $= ... =$

$= y + x$

`4 step:` Finding a derivation of $\sin x \cdot y$

What if:

$(\sin x \cdot y)' = ... =$ [top secret] $= ... =$

$= \cos x \cdot y \cdot (y + x)$

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

It's really easy to find:

$((\sin x \cdot y)^{3.000})' = ... =$ [top secret] $= ... =$

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

Let's find **the 2 derivation** of the expression:

`1 step:` Finding a derivation of $x$

Even my two-aged sister knows that:

$(x)' = ... =$ [top secret] $= ... =$

$= 1.000$

`2 step:` Finding a derivation of $y$

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

$(y)' = ... =$ [top secret] $= ... =$

$= 1.000$

`3 step:` Finding a derivation of $y + x$

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

$(y + x)' = ... =$ [top secret] $= ... =$

$= 2.000$

`4 step:` Finding a derivation of $y$

Man... Just look:

$(y)' = ... =$ [top secret] $= ... =$

$= 1.000$

**5 step:** Finding a derivation of $x$
For centuries, people have hunted for the secret knowledge that:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**6 step:** Finding a derivation of $x \cdot y$
It's really easy to find:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
**7 step:** Finding a derivation of $\cos x \cdot y$
It's simple as fuck:
$(\cos x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= (-1.000) \cdot \sin x \cdot y \cdot (y + x)$
**8 step:** Finding a derivation of $\cos x \cdot y \cdot (y + x)$
thanks to the results of my colleagues' scientific work, I know that:
$(\cos x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= (-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y$
**9 step:** Finding a derivation of $y$
When I was child, my father always told me: "Remember, son:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**10 step:** Finding a derivation of $x$
It's really easy to find:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**11 step:** Finding a derivation of $x \cdot y$
I was asked not to tell anyone that:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
**12 step:** Finding a derivation of $\sin x \cdot y$
For centuries, people have hunted for the secret knowledge that:
$(\sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= \cos x \cdot y \cdot (y + x)$
**13 step:** Finding a derivation of $(\sin x \cdot y)^{2.000}$
My roommate mumbled it in his sleep all night:
$((\sin x \cdot y)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
**14 step:** Finding a derivation of 3.000
What if:
$(3.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
**15 step:** Finding a derivation of $3.000 \cdot (\sin x \cdot y)^{2.000}$
Even my two-aged sister knows that:
$(3.000 \cdot (\sin x \cdot y)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
**16 step:** Finding a derivation of $3.000 \cdot (\sin x \cdot y)^{2.000} \cdot \cos x \cdot y \cdot (y + x)$
I spend the hole of my life to find the answer and finally it's:
$(3.000 \cdot (\sin x \cdot y)^{2.000} \cdot \cos x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 3.000 \cdot (\sin x \cdot y)^{2.000}$
Let's find **the 3 derivation** of the expression:
**1 step:** Finding a derivation of $y$
Even my two-aged sister knows that:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**2 step:** Finding a derivation of $x$
While preparing for exams, I learned a lot of new things, for example:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**3 step:** Finding a derivation of $x \cdot y$
When I was child, my father always told me: "Remember, son:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
**4 step:** Finding a derivation of $\sin x \cdot y$
Sounds logical that it is the same as:
$(\sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= \cos x \cdot y \cdot (y + x)$
**5 step:** Finding a derivation of $(\sin x \cdot y)^{2.000}$
A true prince must know that:
$((\sin x \cdot y)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
**6 step:** Finding a derivation of 3.000
My roommate mumbled it in his sleep all night:
$(3.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
**7 step:** Finding a derivation of $3.000 \cdot (\sin x \cdot y)^{2.000}$
My roommate mumbled it in his sleep all night:
$(3.000 \cdot (\sin x \cdot y)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
**8 step:** Finding a derivation of $y$

If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**9 step:** Finding a derivation of $x$
A true prince must know that:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**10 step:** Finding a derivation of $x \cdot y$
My roommate mumbled it in his sleep all night:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
**11 step:** Finding a derivation of $\cos x \cdot y$
While preparing for exams, I learned a lot of new things, for example:
$(\cos x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= (-1.000) \cdot \sin x \cdot y \cdot (y + x)$
**12 step:** Finding a derivation of 2.000
It's really easy to find:
$(2.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
**13 step:** Finding a derivation of $2.000 \cdot \cos x \cdot y$
It's really easy to find:
$(2.000 \cdot \cos x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000 \cdot (-1.000) \cdot \sin x \cdot y \cdot (y + x)$
**14 step:** Finding a derivation of $x$
When I was child, my father always told me: "Remember, son:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**15 step:** Finding a derivation of $y$
What if:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**16 step:** Finding a derivation of $y + x$
If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(y + x)' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000$
**17 step:** Finding a derivation of $x$
thanks to the results of my colleagues' scientific work, I know that:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**18 step:** Finding a derivation of $y$
A true prince must know that:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**19 step:** Finding a derivation of $y + x$
A true prince must know that:
$(y + x)' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000$
**20 step:** Finding a derivation of $y$
When I was child, my father always told me: "Remember, son:
$(y)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**21 step:** Finding a derivation of $x$
For centuries, people have hunted for the secret knowledge that:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
**22 step:** Finding a derivation of $x \cdot y$
A true prince must know that:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
**23 step:** Finding a derivation of $\sin x \cdot y$
I spend the hole of my life to find the answer and finally it's:
$(\sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= \cos x \cdot y \cdot (y + x)$
**24 step:** Finding a derivation of $-1.000$
It's simple as fuck:
$(-1.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
**25 step:** Finding a derivation of $(-1.000) \cdot \sin x \cdot y$
For centuries, people have hunted for the secret knowledge that:
$((-1.000) \cdot \sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= (-1.000) \cdot \cos x \cdot y \cdot (y + x)$
**26 step:** Finding a derivation of $(-1.000) \cdot \sin x \cdot y \cdot (y + x)$
It's really easy to find:
$((-1.000) \cdot \sin x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= (-1.000) \cdot \cos x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y$
**27 step:** Finding a derivation of $(-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x)$
It's really easy to find:

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

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

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

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

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

I was asked not to tell anyone that:

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

**30 step:** Finding a derivation of $x$

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

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

**31 step:** Finding a derivation of $y$

Even my two-aged sister knows that:

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

**32 step:** Finding a derivation of $y + x$

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

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

**33 step:** Finding a derivation of $y$

It's really easy to find:

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

**34 step:** Finding a derivation of $x$

It's really easy to find:

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

**35 step:** Finding a derivation of $x \cdot y$

It's simple as fuck:

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

**36 step:** Finding a derivation of $\cos x \cdot y$

It's simple as fuck:

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

**37 step:** Finding a derivation of $\cos x \cdot y \cdot (y+x)$

A true prince must know that:

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

**38 step:** Finding a derivation of $x$

My roommate mumbled it in his sleep all night:

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

**39 step:** Finding a derivation of $y$

I was asked not to tell anyone that:

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

**40 step:** Finding a derivation of $y + x$

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

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

**41 step:** Finding a derivation of $y$

It's really easy to find:

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

**42 step:** Finding a derivation of $x$

What if:

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

**43 step:** Finding a derivation of $x \cdot y$

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

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

**44 step:** Finding a derivation of $\cos x \cdot y$

Even my two-aged sister knows that:

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

**45 step:** Finding a derivation of $\cos x \cdot y \cdot (y+x)$

What if:

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

**46 step:** Finding a derivation of $y$

It's simple as fuck:

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

`47 step:` Finding a derivation of $x$
My roommate mumbled it in his sleep all night:
$(x)' = \ldots = [\text{top secret}] = \ldots =$
$= 1.000$
`48 step:` Finding a derivation of $x \cdot y$
It's simple as fuck:
$(x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= y + x$
`49 step:` Finding a derivation of $\sin x \cdot y$
A true prince must know that:
$(\sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= \cos x \cdot y \cdot (y + x)$
`50 step:` Finding a derivation of 2.000
My roommate mumbled it in his sleep all night:
$(2.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
`51 step:` Finding a derivation of $2.000 \cdot \sin x \cdot y$
A true prince must know that:
$(2.000 \cdot \sin x \cdot y)' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000 \cdot \cos x \cdot y \cdot (y + x)$
`52 step:` Finding a derivation of $2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
A true prince must know that:
$(2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= 2.000 \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 2.000 \cdot \sin x \cdot y$
`53 step:` Finding a derivation of 3.000
If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(3.000)' = \ldots = [\text{top secret}] = \ldots =$
$= 0.000$
`54 step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
I spend the hole of my life to find the answer and finally it's:
$(3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot (2.000 \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 2.000 \cdot \sin x \cdot y)$
`55 step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x)$
When I was child, my father always told me: "Remember, son:
$(3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x))' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot (2.000 \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 2.000 \cdot \sin x \cdot y) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x)$
`56 step:` Finding a derivation of $3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 3.000 \cdot (\sin x \cdot y)^{2.000}$
If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 3.000 \cdot (\sin x \cdot y)^{2.000})' = \ldots = [\text{top secret}] = \ldots =$
$= 3.000 \cdot (2.000 \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 2.000 \cdot \sin x \cdot y) \cdot \cos x \cdot y \cdot (y + x) + (((-1.000) \cdot \cos x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y \cdot (y + x)) \cdot 3.000 \cdot (\sin x \cdot y)^{2.000} + 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y)$
**Finally... The 3 derivation of the expression:**
$f^{(3)}(x, y) = 3.000 \cdot (2.000 \cdot \cos x \cdot y \cdot (y + x) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 2.000 \cdot \sin x \cdot y) \cdot \cos x \cdot y \cdot (y + x) + ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y) \cdot 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) + (((-1.000) \cdot \cos x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin x \cdot y \cdot (y + x)) \cdot 3.000 \cdot (\sin x \cdot y)^{2.000} + 3.000 \cdot 2.000 \cdot \sin x \cdot y \cdot \cos x \cdot y \cdot (y + x) \cdot ((-1.000) \cdot \sin x \cdot y \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos x \cdot y)$
BRITISH SCIENTISTS WERE SHOCKED AGAIN, WHEN THEY COUNT THE 3 DERIVATION OF THIS EXPRESSION!!!
In the point $M_0(x_0, y_0) = (3.142,\ 2.000)$ it's value = 815.45956

**Finding partical derivations** Partial derivation of the expression on the variable x:
$\frac{\partial f}{\partial x} = 3.000 \cdot (\sin 2.000 \cdot x)^{2.000} \cdot 2.000 \cdot \cos 2.000 \cdot x$
In the point $M_0(x_0, y_0) = (3.142,\ 2.000)$ it's value = 0.00000 !!!
Partial derivation of the expression on the variable y:
$\frac{\partial f}{\partial y} = 3.000 \cdot (\sin 3.142 \cdot y)^{2.000} \cdot 3.142 \cdot \cos 3.142 \cdot y$
In the point $M_0(x_0, y_0) = (3.142,\ 2.000)$ it's value = 0.00000 !!!

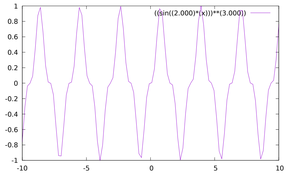
**Finding full derivation** Full derivation:
$\sqrt{(3.000 \cdot (\sin 2.000 \cdot x)^{2.000} \cdot 2.000 \cdot \cos 2.000 \cdot x)^{2.000} + (3.000 \cdot (\sin 3.142 \cdot y)^{2.000} \cdot 3.142 \cdot \cos 3.142 \cdot y)^{2.000}}$
In the point $M_0(x_0, y_0) = (3.142,\ 2.000)$ it's value = 0.00000 !!!

## 3 Exploration the expression as a function of the first variable

Now let's consider the expression as a function of x variable: $\mathrm{f(x)} = (\sin 2.000 \cdot x)^{3.000}$

**Decomposing on Macloren's formula** **Maklorens formula for** $x \to x_0 = 3.142$:
$\mathrm{f(x)} = (-0.000) + 0.000 \cdot (x - 3.142) + (-0.002) \cdot (x - 3.142)^{2.000} + 8.000 \cdot (x - 3.142)^{3.000} + 0.007 \cdot (x - 3.142)^{4.000} + o((x - 3.142)^{4.000})$

**Graphics** **Graph** $\mathrm{f(x)} = (\sin 2.000 \cdot x)^{3.000}$ on the diapasone $x \in [-10 : 10]$ :




**Equations in the point** **Tangent equation** in the point $x_0 = 1.000$:

f(x) = $(-2.064) \cdot (x - 1.000) + 0.752$

**Normal equation** in the point $x_0 = 1.000$:

f(x) = $0.484 \cdot (x - 1.000) + 0.752$