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:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`2 step:` Finding a derivation of x
It's really easy to find:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`3 step:` Finding a derivation of $x \cdot y$
My roommate mumbled it in his sleep all night:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`4 step:` Finding a derivation of $\sin(x \cdot y)$
Sounds logical that it is the same as:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`5 step:` Finding a derivation of $(\sin(x \cdot y))^{3.000}$
For centuries, people have hunted for the secret knowledge that:
$((\sin(x \cdot y))^{3.000})' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot (\sin(x \cdot y))^{2.000} \cdot \cos(x \cdot y) \cdot (y + x)$
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:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`2 step:` Finding a derivation of x
It's really easy to find:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`3 step:` Finding a derivation of $x \cdot y$
My roommate mumbled it in his sleep all night:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`4 step:` Finding a derivation of $\sin(x \cdot y)$
What if:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`5 step:` Finding a derivation of $(\sin(x \cdot y))^{3.000}$
It's really easy to find:
$((\sin(x \cdot y))^{3.000})' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot (\sin(x \cdot y))^{2.000} \cdot \cos(x \cdot y) \cdot (y + x)$
Let's find **the 2 derivation** of the expression:
`1 step:` Finding a derivation of x
Even my two-aged sister knows that:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`2 step:` Finding a derivation of y
When I was child, my father always told me: "Remember, son:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`3 step:` Finding a derivation of $y + x$
I spend the hole of my life to find the answer and finally it's:
$(y + x)' = ... = [\text{top secret}] = ... =$
$= 2.000$
`4 step:` Finding a derivation of y
Man... Just look:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`5 step:` Finding a derivation of x
For centuries, people have hunted for the secret knowledge that:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`6 step:` Finding a derivation of $x \cdot y$
It's really easy to find:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`7 step:` Finding a derivation of $\cos(x \cdot y)$
It's simple as fuck:
$(\cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`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:
$(\cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)$
`9 step:` Finding a derivation of y
When I was child, my father always told me: "Remember, son:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`10 step:` Finding a derivation of x
It's really easy to find:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`11 step:` Finding a derivation of $x \cdot y$
I was asked not to tell anyone that:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`12 step:` Finding a derivation of $\sin(x \cdot y)$
For centuries, people have hunted for the secret knowledge that:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`13 step:` Finding a derivation of $(\sin(x \cdot y))^{2.000}$
My roommate mumbled it in his sleep all night:
$((\sin(x \cdot y))^{2.000})' = ... = [\text{top secret}] = ... =$
$= 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x)$
`14 step:` Finding a derivation of 3.000
What if:
$(3.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`15 step:` Finding a derivation of $3.000 \cdot (\sin(x \cdot y))^{2.000}$
Even my two-aged sister knows that:
$(3.000 \cdot (\sin(x \cdot y))^{2.000})' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x)$
`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:
$(3.000 \cdot (\sin(x \cdot y))^{2.000} \cdot \cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x) \cdot \cos(x \cdot y) \cdot (y + x) + ((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)) \cdot 3.000 \cdot (\sin(x \cdot y))^{2.000}$
Let's find **the 3 derivation** of the expression:
`1 step:` Finding a derivation of y
Even my two-aged sister knows that:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`2 step:` Finding a derivation of x
While preparing for exams, I learned a lot of new things, for example:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`3 step:` Finding a derivation of $x \cdot y$
When I was child, my father always told me: "Remember, son:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`4 step:` Finding a derivation of $\sin(x \cdot y)$
Sounds logical that it is the same as:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`5 step:` Finding a derivation of $(\sin(x \cdot y))^{2.000}$
A true prince must know that:
$((\sin(x \cdot y))^{2.000})' = ... = [\text{top secret}] = ... =$
$= 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x)$
`6 step:` Finding a derivation of 3.000
My roommate mumbled it in his sleep all night:
$(3.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`7 step:` Finding a derivation of $3.000 \cdot (\sin(x \cdot y))^{2.000}$
My roommate mumbled it in his sleep all night:
$(3.000 \cdot (\sin(x \cdot y))^{2.000})' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x)$
`8 step:` Finding a derivation of y
If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`9 step:` Finding a derivation of x
A true prince must know that:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`10 step:` Finding a derivation of $x \cdot y$
My roommate mumbled it in his sleep all night:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`11 step:` Finding a derivation of $\cos(x \cdot y)$
While preparing for exams, I learned a lot of new things, for example:
$(\cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`12 step:` Finding a derivation of 2.000
It's really easy to find:
$(2.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`13 step:` Finding a derivation of $2.000 \cdot \cos(x \cdot y)$
It's really easy to find:
$(2.000 \cdot \cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`14 step:` Finding a derivation of x
When I was child, my father always told me: "Remember, son:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`15 step:` Finding a derivation of y
What if:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`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:
$(y + x)' = ... = [\text{top secret}] = ... =$
$= 2.000$
`17 step:` Finding a derivation of x
thanks to the results of my colleagues' scientific work, I know that:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`18 step:` Finding a derivation of y
A true prince must know that:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`19 step:` Finding a derivation of $y + x$
A true prince must know that:
$(y + x)' = ... = [\text{top secret}] = ... =$
$= 2.000$
`20 step:` Finding a derivation of y
When I was child, my father always told me: "Remember, son:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`21 step:` Finding a derivation of x
For centuries, people have hunted for the secret knowledge that:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`22 step:` Finding a derivation of $x \cdot y$
A true prince must know that:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`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:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`24 step:` Finding a derivation of -1.000
It's simple as fuck:
$(-1.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`25 step:` Finding a derivation of $(-1.000) \cdot \sin(x \cdot y)$
For centuries, people have hunted for the secret knowledge that:
$((-1.000) \cdot \sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \cos(x \cdot y) \cdot (y + x)$
`26 step:` Finding a derivation of $(-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
It's really easy to find:
$((-1.000) \cdot \sin(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \cos(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y)$
`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:
$((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= ((-1.000) \cdot \cos(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y)) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`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:
$((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= ((-1.000) \cdot \cos(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y)) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`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:
$(((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)) \cdot 3.000 \cdot (\sin(x \cdot y))^{2.000})' = ... = [\text{top secret}] = ... =$
$= (((-1.000) \cdot \cos(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y)) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x) + 2.000 \cdot (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)) \cdot 3.000 \cdot (\sin(x \cdot y))^{2.000} + 3.000 \cdot 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x) \cdot ((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y))$
`30 step:` Finding a derivation of x
If someone asked me that in the middle of the night, I wouldn't hesitate to say:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`31 step:` Finding a derivation of y
Even my two-aged sister knows that:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`32 step:` Finding a derivation of $y + x$
I spend the hole of my life to find the answer and finally it's:
$(y + x)' = ... = [\text{top secret}] = ... =$
$= 2.000$
`33 step:` Finding a derivation of y
It's really easy to find:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`34 step:` Finding a derivation of x
It's really easy to find:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`35 step:` Finding a derivation of $x \cdot y$
It's simple as fuck:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`36 step:` Finding a derivation of $\cos(x \cdot y)$
It's simple as fuck:
$(\cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`37 step:` Finding a derivation of $\cos(x \cdot y) \cdot (y + x)$
A true prince must know that:
$(\cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)$
`38 step:` Finding a derivation of x
My roommate mumbled it in his sleep all night:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`39 step:` Finding a derivation of y
I was asked not to tell anyone that:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`40 step:` Finding a derivation of $y + x$
I spend the hole of my life to find the answer and finally it's:
$(y + x)' = ... = [\text{top secret}] = ... =$
$= 2.000$
`41 step:` Finding a derivation of y
It's really easy to find:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`42 step:` Finding a derivation of x
What if:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`43 step:` Finding a derivation of $x \cdot y$
While preparing for exams, I learned a lot of new things, for example:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`44 step:` Finding a derivation of $\cos(x \cdot y)$
Even my two-aged sister knows that:
$(\cos(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x)$
`45 step:` Finding a derivation of $\cos(x \cdot y) \cdot (y + x)$
What if:
$(\cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= (-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)$
`46 step:` Finding a derivation of y
It's simple as fuck:
$(y)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`47 step:` Finding a derivation of x
My roommate mumbled it in his sleep all night:
$(x)' = ... = [\text{top secret}] = ... =$
$= 1.000$
`48 step:` Finding a derivation of $x \cdot y$
It's simple as fuck:
$(x \cdot y)' = ... = [\text{top secret}] = ... =$
$= y + x$
`49 step:` Finding a derivation of $\sin(x \cdot y)$
A true prince must know that:
$(\sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= \cos(x \cdot y) \cdot (y + x)$
`50 step:` Finding a derivation of 2.000
My roommate mumbled it in his sleep all night:
$(2.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`51 step:` Finding a derivation of $2.000 \cdot \sin(x \cdot y)$
A true prince must know that:
$(2.000 \cdot \sin(x \cdot y))' = ... = [\text{top secret}] = ... =$
$= 2.000 \cdot \cos(x \cdot y) \cdot (y + x)$
`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:
$(2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= 2.000 \cdot \cos(x \cdot y) \cdot (y + x) \cdot \cos(x \cdot y) \cdot (y + x) + ((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)) \cdot 2.000 \cdot \sin(x \cdot y)$
`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:
$(3.000)' = ... = [\text{top secret}] = ... =$
$= 0.000$
`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:
$(3.000 \cdot 2.000 \cdot \sin(x \cdot y) \cdot \cos(x \cdot y) \cdot (y + x))' = ... = [\text{top secret}] = ... =$
$= 3.000 \cdot (2.000 \cdot \cos(x \cdot y) \cdot (y + x) \cdot \cos(x \cdot y) \cdot (y + x) + ((-1.000) \cdot \sin(x \cdot y) \cdot (y + x) \cdot (y + x) + 2.000 \cdot \cos(x \cdot y)) \cdot 2.000 \cdot \sin(x \cdot y))$
`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:

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

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 $= 0.00000$!!!

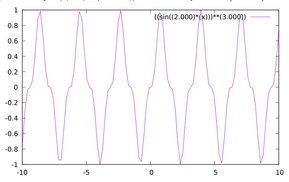
3 Exploration the expression as a function of the first variable

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

Decomposing on Macloren's formula **Maklorens formula for** $x \to x_0 = 3.142$:

$f(x) = (-0.000) + 0.000 \cdot (x - 3.142) + (-0.002) \cdot (x - 3.142)^{2.000} + 8.000 \cdot (x - 3.142)^{3.000} + 0.007 \cdot (x - 3.142)^{4.000} + o((x - 3.142)^{4.000})$

Graphics **Graph** $f(x) = (\sin(2.000 \cdot x))^{3.000}$ 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 $x_0 = 1.000$:

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