New approaches to derivative analysis

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1 Introduction

In this work we discuss several new approaches to finding function derivatives. Many people, and even mathematicians, would say that is a trick, because it gives you a huge boost in productivity. Honor programming!

2 Example

Let's consider an example of finding a derivative in an expression that normal universities would call brutal $((\frac{\sin x}{x} * \ln x + x * \tan x * \ln x))'$

Make that equation great again! $(x)' \to 1.00$

Hence, $(\sin x)' \to \cos x * 1.00$

Consequently, $(x)' \to 1.00$

It's time to simplify previous equation: $(\frac{\sin x}{x})' \to \frac{(\cos x * 1.00 * x - 1.00 * \sin x)}{x * x}$

We suggest to hope that with the help of god it will later be slashed out $(x)' \to 1.00$

If all else fails, read the well-known book K and R: $(\ln x)' \to \frac{1.00}{x}$

It's time to simplify previous equation: $(\frac{\sin x}{x} * \ln x)' \to (\frac{(\cos x * 1.00 * x - 1.00 * \sin x)}{x * x} * \ln x + \frac{\sin x}{x} * \frac{1.00}{x})$

It's time to simplify previous equation: $(x)' \to 1.00$

Later, due to, $(x)' \to 1.00$

Consequently, $(x)' \to 1.00$

And so, roughly speaking $(\ln x)' \to \frac{1.00}{x}$

Our next step is quite obvious $(x * \ln x)' \to (1.00 * \ln x + x * \frac{1.00}{x})$

You should better give it to MIPT student, he would do that much faster $(\tan x * \ln x)' \to \frac{1.00}{(\cos x * \ln x)^{2.00}} * (1.00 * \ln x + x * \frac{1.00}{x})$

What shall we do with this?? $(x * \tan x * \ln x)' \to (1.00 * \tan x * \ln x + x * \frac{1.00}{(\cos x * \ln x)^{2.00}} * (1.00 * \ln x + x * \frac{1.00}{x}))$

Our next step is quite obvious $((\frac{\sin x}{x} * \ln x + x * \tan x * \ln x))' \to ((\frac{(\cos x * 1.00 * x - 1.00 * \sin x)}{x * x} * \ln x + \frac{\sin x}{x} * \frac{1.00}{x}) + (1.00 * \tan x * \ln x + x * \frac{1.00}{(\cos x * \ln x)^{2.00}} * (1.00 * \ln x + x * \frac{1.00}{x})))$

You should better give it to MIPT student, he would do that much faster $\to ((\frac{(\cos x * x - \sin x)}{x * x} * \ln x + \frac{\sin x}{x} * \frac{1.00}{x}) + (\tan x * \ln x + x * \frac{1.00}{(\cos x * \ln x)^{2.00}} * (\ln x + x * \frac{1.00}{x})))$

All in all, the derivative of this crocodile: $((\frac{\sin x}{x} * \ln x + x * \tan x * \ln x))'$
$\to ((\frac{(\cos x * x - \sin x)}{x * x} * \ln x + \frac{\sin x}{x} * \frac{1.00}{x}) + (\tan x * \ln x + x * \frac{1.00}{(\cos x * \ln x)^{2.00}} * (\ln x + x * \frac{1.00}{x})))$

3 Ending words

In previous sections we modestly discussed different techniques, which make differentiation quite easy and even intuitively understandable. Of course, this brief leaflet should be considered only as an introduction to new methods of derivative analysis.