Taking the derivative of a function.

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1 Introduction

Rest in peace, my brothers, for it is coming...

2 Variables processing.

Variables that you entered during initialization:
$x = 8.156$
$y = 9.123$
$z = 15.7109$

3 The entered function.

$f(x,\ y,\ z) = sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot cos(tg(ctg(x \cdot y + ch(ln(z))))) \cdot ln(z \cdot x \cdot y)$

4 Variable substitution in entered function.

$\frac{\partial f(8.156,\ 9.123,\ 15.7109)}{\partial x} = 2.3594$

5 The first derivative of the variable x.

$\frac{\partial f(x,\ y,\ z)}{\partial x} = (cos(tg(ctg(x \cdot y + ch(ln(z))))) \cdot \frac{1}{cos(ctg(x \cdot y + ch(ln(z))))^2} \cdot \frac{-1}{sin(x \cdot y + ch(ln(z)))^2} \cdot ((1 \cdot y + 0 \cdot x) + sh(ln(z)) \cdot \frac{0}{z}) \cdot cos(tg(ctg(x \cdot y + ch(ln(z))))) + (-1) \cdot sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot \frac{1}{cos(ctg(x \cdot y + ch(ln(z))))^2} \cdot \frac{-1}{sin(x \cdot y + ch(ln(z)))^2} \cdot ((1 \cdot y + 0 \cdot x) + sh(ln(z)) \cdot \frac{0}{z}) \cdot sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot ln(z \cdot x \cdot y) + \frac{((0 \cdot x + 1 \cdot z) \cdot y + 0 \cdot z \cdot x)}{z \cdot x \cdot y} \cdot sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot cos(tg(ctg(x \cdot y + ch(ln(z)))))$

6 Simplified first derivative of the variable x.

$\frac{\partial f(x,\ y,\ z)}{\partial x} = (cos(tg(ctg(x \cdot y + ch(ln(z))))) \cdot \frac{1}{cos(ctg(x \cdot y + ch(ln(z))))^2} \cdot \frac{-1}{sin(x \cdot y + ch(ln(z)))^2} \cdot y \cdot cos(tg(ctg(x \cdot y + ch(ln(z)))))) + (-1) \cdot sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot \frac{1}{cos(ctg(x \cdot y + ch(ln(z))))^2} \cdot \frac{-1}{sin(x \cdot y + ch(ln(z)))^2} \cdot y \cdot sin(tg(ctg(x \cdot y + ch(ln(z)))))) \cdot ln(z \cdot x \cdot y) + \frac{z \cdot y}{z \cdot x \cdot y} \cdot sin(tg(ctg(x \cdot y + ch(ln(z))))) \cdot cos(tg(ctg(x \cdot y + ch(ln(z)))))$

7 Variable substitution in first derivative.

$\frac{\partial f(8.156,\ 9.123,\ 15.7109)}{\partial x} = -6548.9$