

Differentiator by Emil Galimov

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1 Function and its derivative

$$f(x, y, z) = ((\cos \ln x^2 + \sin \frac{1}{y}) + 5^z)$$

$$\begin{array}{l} x = 2 \\ y = 1.3 \\ z = 2.1 \\ f(2, 1.3, 2.1) = 30.2445 \end{array}$$

$$\frac{\partial f}{\partial x} = ((-1 \cdot \sin \ln x^2 \cdot \frac{2 \cdot x^1 \cdot 1}{x^2} + \cos \frac{1}{y} \cdot \frac{(0 \cdot y - 1 \cdot 0)}{y \cdot y}) + 5^z \cdot \ln 5 \cdot 0)$$

$$\frac{\partial f}{\partial x} = -1 \cdot \sin \ln x^2 \cdot \frac{2 \cdot x}{x^2}$$

$$\frac{\partial f}{\partial x}(2, 1.3, 2.1) = -0.983028$$

$$\frac{\partial f}{\partial y} = ((-1 \cdot \sin \ln x^2 \cdot \frac{2 \cdot x^1 \cdot 0}{x^2} + \cos \frac{1}{y} \cdot \frac{(0 \cdot y - 1 \cdot 1)}{y \cdot y}) + 5^z \cdot \ln 5 \cdot 0)$$

$$\frac{\partial f}{\partial y} = \cos \frac{1}{y} \cdot \frac{-1}{y \cdot y}$$

$$\frac{\partial f}{\partial y}(2, 1.3, 2.1) = -0.425116$$

$$\frac{\partial f}{\partial z} = ((-1 \cdot \sin \ln x^2 \cdot \frac{2 \cdot x^1 \cdot 0}{x^2} + \cos \frac{1}{y} \cdot \frac{(0 \cdot y - 1 \cdot 0)}{y \cdot y}) + 5^z \cdot \ln 5 \cdot 1)$$

$$\frac{\partial f}{\partial z} = 5^z \cdot 1.60944$$

$$\frac{\partial f}{\partial z}(2, 1.3, 2.1) = 47.2619$$