F4 - PARTIELLA DERIVATOR

LARS FILIPSSON

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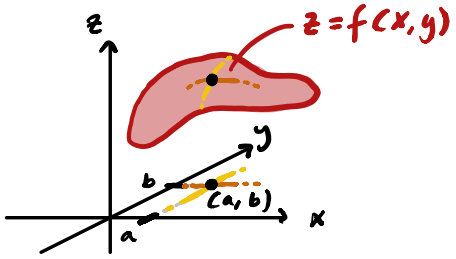

Lutningen av orangea kurvan:

$$\frac{\partial f}{\partial x}(a,b) = \lim_{h\to 0} \frac{f(a+h,b)-f(a,b)}{h}$$

Lutningen av gula kurvan

$$\frac{\partial f}{\partial y}(a,b) = \lim_{k\to 0} \frac{f(a,b+h)-f(a,b)}{k}$$

Ex

$$\begin{cases} f(x,y) = x^2+y^2 \\ \frac{\partial f}{\partial x}(2,1) = 4, \quad \frac{\partial f}{\partial y}(2,1) = 2 \end{cases}$$

$\frac{\partial f}{\partial x}$: $x^2 \to 2x$, $y^2 = c \to 0$

$\frac{\partial f}{\partial y}$: $x^2 = c \to 0$, $y^2 \to 2y$

c, konstant

Ekvationen för tangentplanet TP: $z = 5 + 4(x-2) + 2(y-1)$

x-koord. y-koord.

$f(2,1)$ $\frac{\partial f}{\partial x}(2,1)$ $\frac{\partial f}{\partial y}(2,1)$