

Funksjoner i flere variable

$F: \mathbb{R}^n \rightarrow \mathbb{R}^m \rightsquigarrow$  Jacobimatrix

$$F(x_1, \dots, x_n) = (F_1(x_1, \dots, x_n), \dots, F_m(x_1, \dots, x_n))$$

$$F'(a) = \begin{pmatrix} \frac{\partial F_1}{\partial x_1}(a) & \dots & \frac{\partial F_1}{\partial x_n}(a) \\ \vdots & & \vdots \\ \frac{\partial F_m}{\partial x_1}(a) & \dots & \frac{\partial F_m}{\partial x_n}(a) \end{pmatrix}$$

Kjernerregelen:

$$\mathbb{R}^n \xrightarrow{F} \mathbb{R}^m \xrightarrow{G} \mathbb{R}^k$$

$H = G \circ F$

$$\rightsquigarrow H'(a) = F'(G(a)) \cdot G'(a)$$

Lineariseringen til en funksjon:

$$T_a F(x) = F(a) + F'(a) \cdot (x - a)$$

← affinitetsbildningen som best approksimerer  $F$  i punktet  $a \in \mathbb{R}^n$ .