

# NØKKELBEGREPER — UKE 4

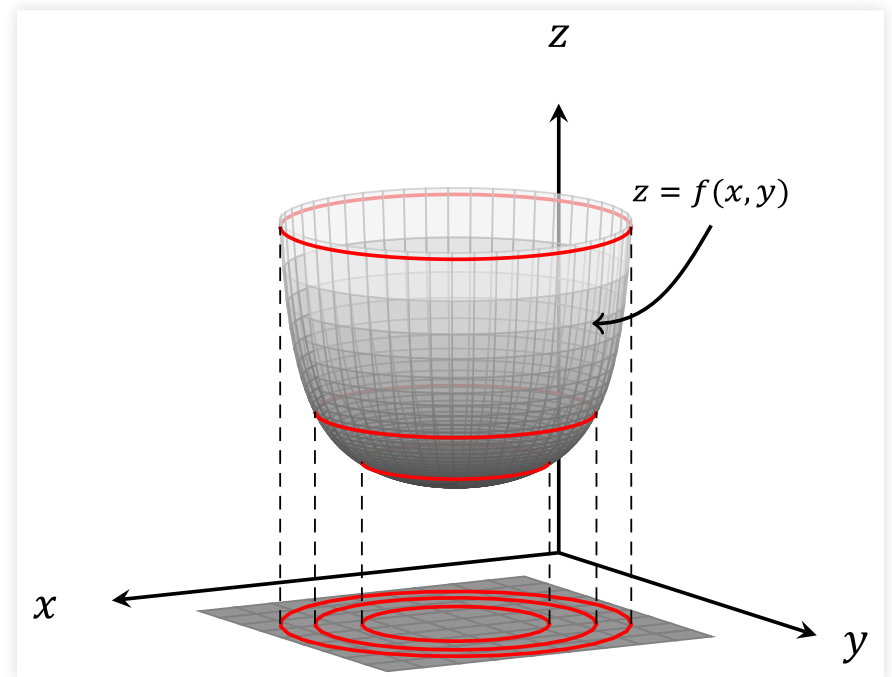
- Funksjoner av flere variabler (skalarfelt)
- Nivåkurver og nivåflater
- Grenseverdi
- Kontinuitet
- Partiellderivasjon
- Kvadratiske flater

# NIVÅKURVER

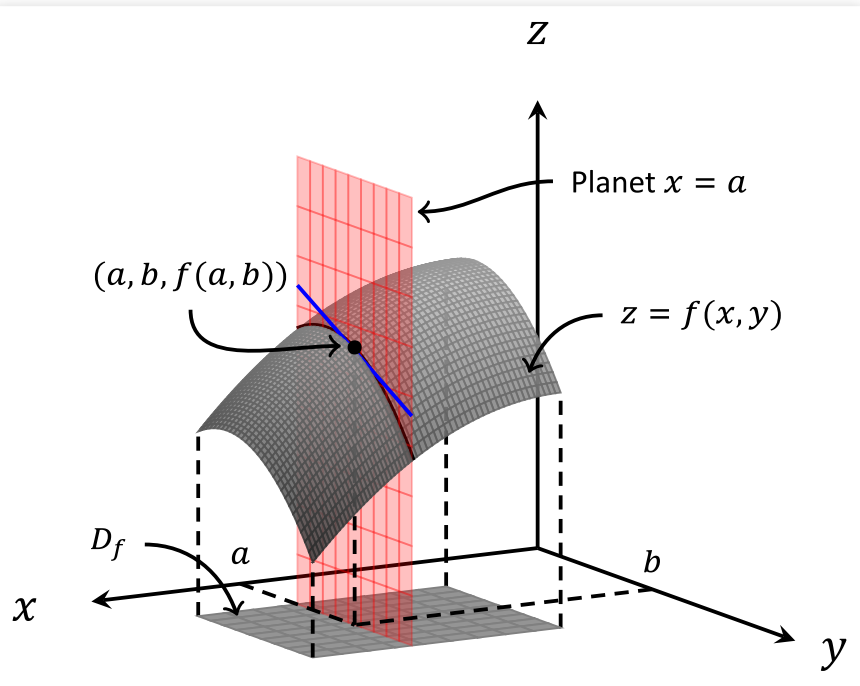
For et gitt tall  $c$ , er kurven

$$f(x, y) = c$$

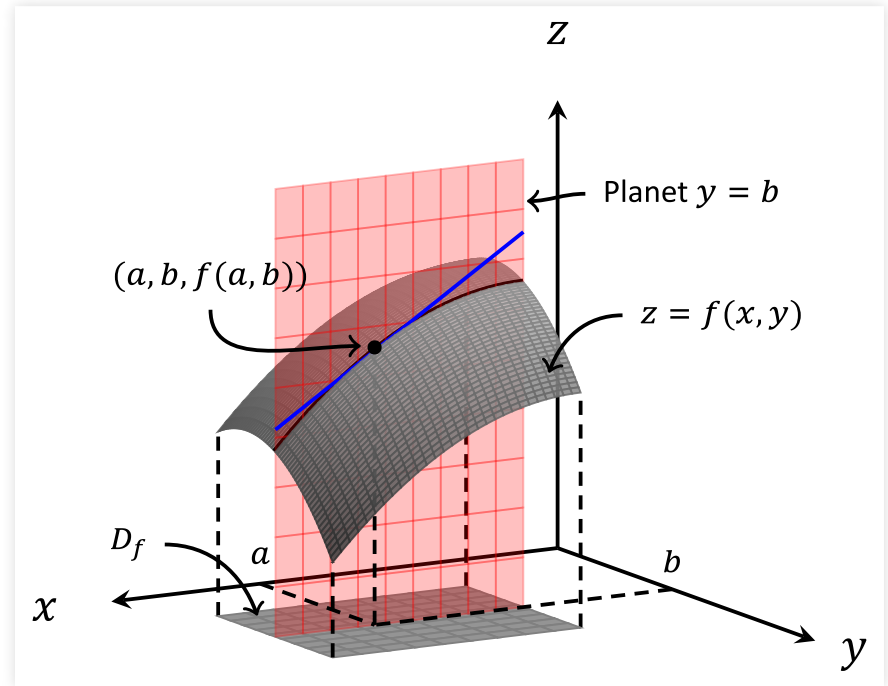
i  $xy$ -planet nivåkurven til  $f$  i høyde  $c$ , der  $c \in V_f$ .



# PARTIELLDERIVASJON

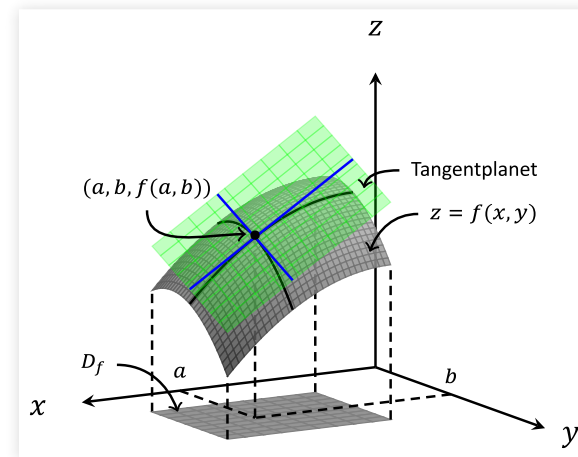
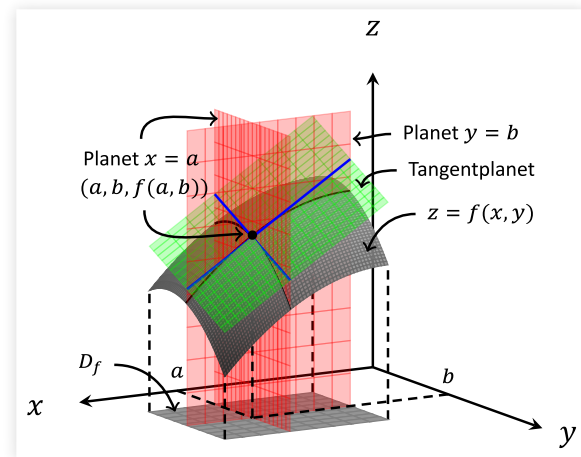


$$\frac{\partial f}{\partial x}(a, b) = \lim_{h \rightarrow 0} \frac{f(a + h, b) - f(a, b)}{h}$$



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

# TANGENTPLAN



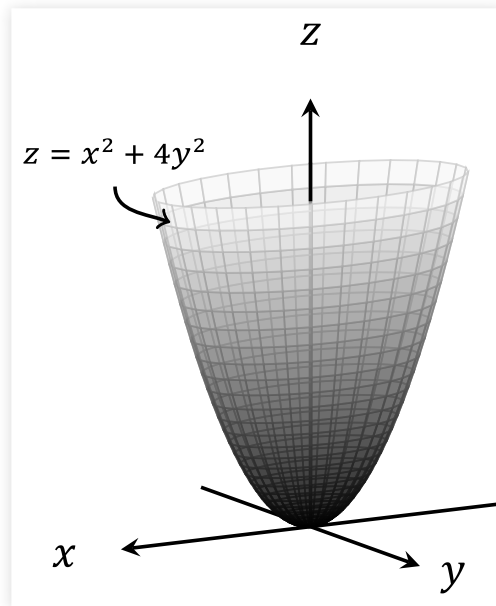
$$z = f(a, b) + \frac{\partial f}{\partial x}(a, b)(x - a) + \frac{\partial f}{\partial y}(a, b)(y - b)$$

# KVADRATISKE FLATER

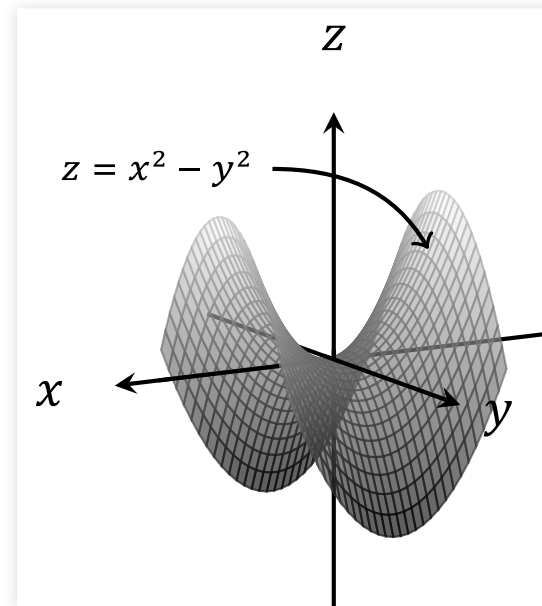
En kvadratisk flate er en flate gitt ved ligningen

$$Ax^2 + By^2 + Cz^2 + Dxy + Exz + Fyz + Gx + Hy + Iz = J$$

der  $A, B, C, D, E, F, G, H, I, J \in \mathbb{R}$ .



Elliptisk paraboloid



Sadelflate (hyperbolsk paraboloid)