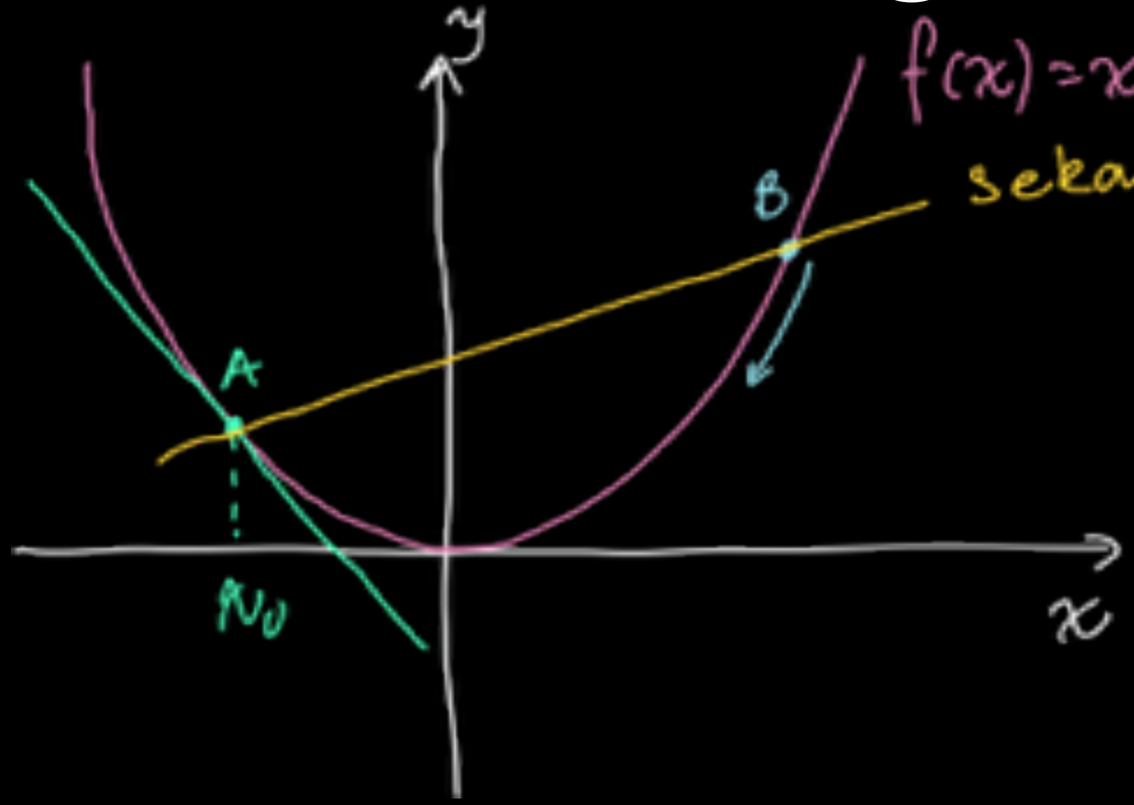
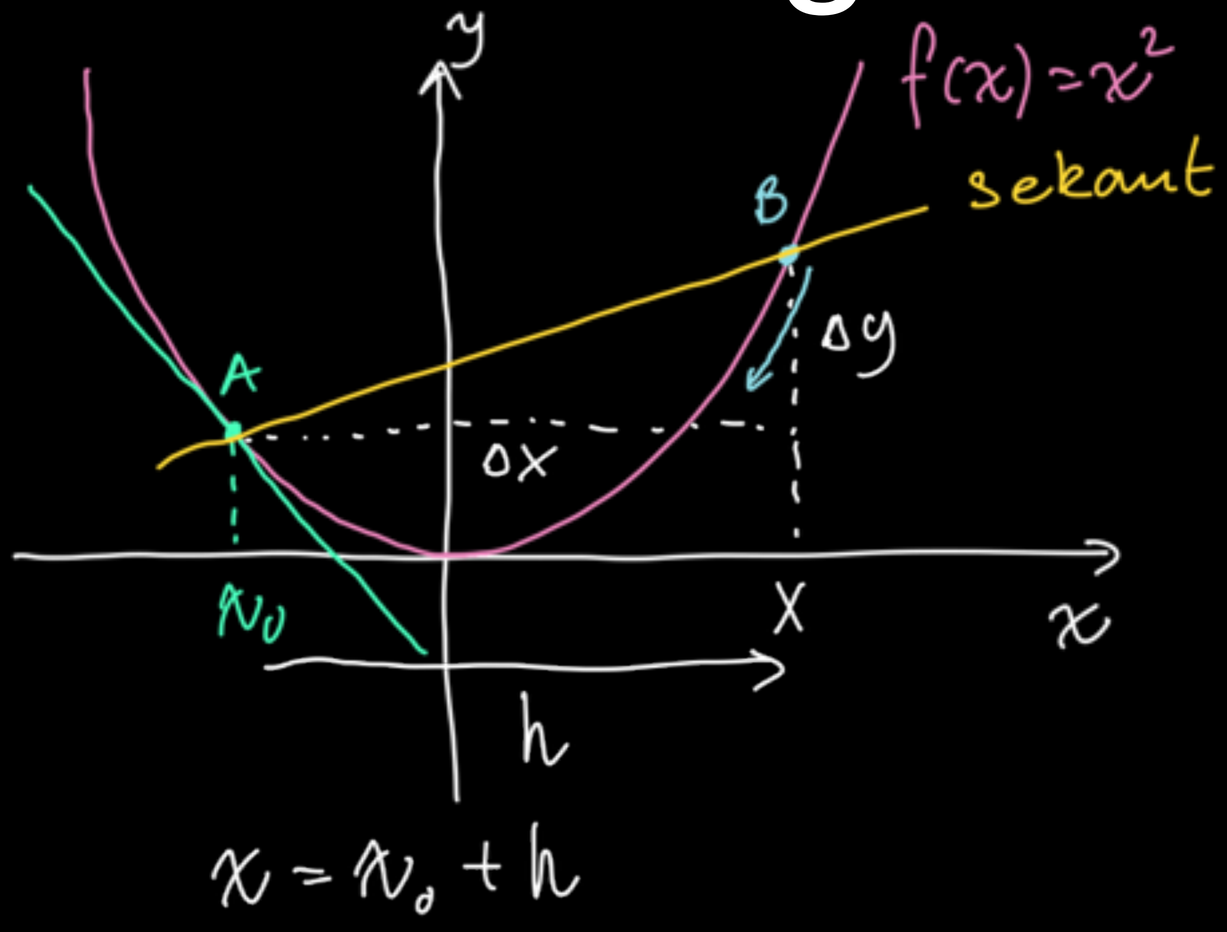
SEKANTER
TANGENTER
OG TRETRINSREGLEN

Sekanter og tangenter



$$a = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Tretrinsreglen



① $\Delta y = f(x_0+h) - f(x_0)$

② $\frac{\Delta y}{\Delta x} = \frac{f(x_0+h) - f(x_0)}{h}$

differenskvotient

③ $\lim_{h \to 0} \frac{f(x_0+h) - f(x_0)}{h}$

Eksempel

$f(x) = x^2$

① $\Delta y = f(x_0 + h) - f(x_0)$

② $\frac{\Delta y}{\Delta x} = \frac{f(x_0 + h) - f(x_0)}{h}$

③ $\lim_{h \to 0} \frac{f(x_0 + h) - f(x_0)}{h}$

① $\Delta y = (x_0 + h)^2 - x_0^2$ $\quad (a+b)^2 = a^2 + b^2 + 2ab$

$= x_0^2 + h^2 + 2x_0 h - x_0^2$

$= h^2 + 2x_0 h$

② $\frac{\Delta y}{\Delta x} = \frac{h^2 + 2x_0 h}{h} = h + 2x_0$

③ $\lim_{h \to 0} h + 2x_0 = 2x_0 + "0" = 2x_0$

$f'(x) = 2x$

$f'(x)$ f mærke af x

afledte funktion

differenskvotient