

# Polynomfunktionen

Hauptform  $\Rightarrow f(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$  (PG = n)

Bsp:  $\underline{3x^5 - 2x^4 + x^3 - 2x + 1}$

höchste Potenz von  $x = 5 =$  Polynomgrad (PG)

$\rightarrow$  Geraden PG=1

$\rightarrow$  Parabeln PG=2

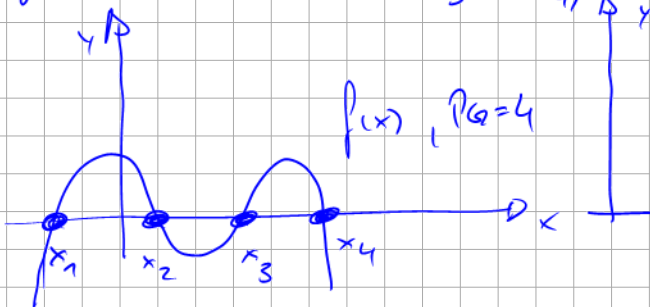
Faktorisieren

Produktform:  $f(x) = a_n (x-x_n)(x-x_{n-1})(x-x_{n-2}) \dots (x-x_1)$

n Faktoren  $\hat{=}$  n Nullstellen

$x_n \dots x_1 =$  Nullstellen von  $f(x)$

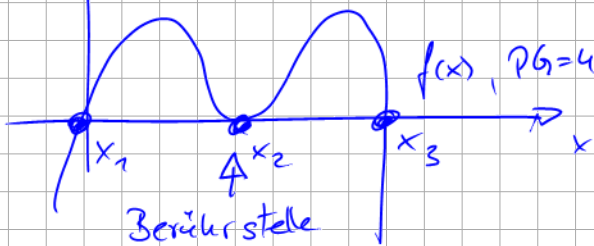
$f(x) = a(x-x_1)(x-x_2)(x-x_3)(x-x_4)$



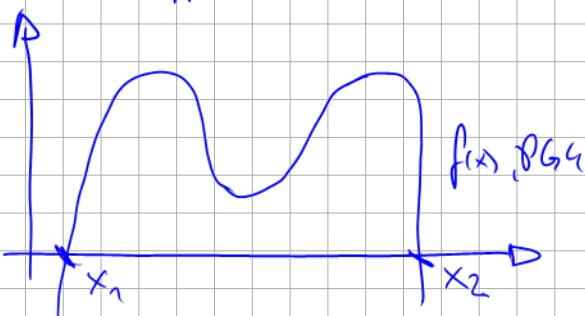
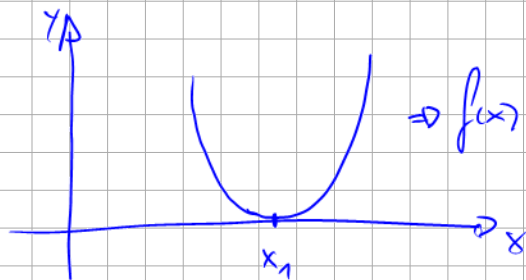
$\Rightarrow$  Produktform  $f(x) = a(x-x_1)(x-x_2)$



$f(x) = a(x-x_1)(x-x_2)^2(x-x_3)$



$\Rightarrow f(x) = a(x-x_1)^2$



keine Nst  
keine Produktform

$f(x) = a(x-x_1)(x-x_2)(b_2x^2 + b_1x + b_0)$

