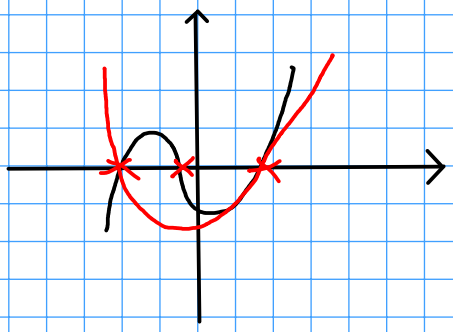
Polynomdivisionen

$f_3(x) \rightarrow f_2(x)$, $f_2(x_i) = 0 \Rightarrow f_3(x_i) = 0$

$(a x^3 + b x^2 + c x + d) : (x - x_0) = a' x^2 + b' x + c'$



1. Erraten der Nullstelle x0
2. Einsetzen von x0 in Pd.
3. Lösen der Pd.
4. Lösen der übrigen Nullstellen

$f(x) = x^3 - 6x^2 - x + 6$

$x_i^3 - 6x_i^2 - x_i + 6 = 0 \quad | x_0 = 1$

$1^3 - 6 \cdot 1^2 - 1 + 6 = 0$

$(x^3 - 6x^2 - x + 6) : (x - 1) = x^2 - 5x - 6$

$-(x^3 - x^2) \quad | (x-1) \cdot x^2$

$-5x^2 - x$

$-(-5x^2 + 5x) \quad | (x-1) \cdot (-5x)$

$-6x + 6$

$-(-6x + 6) \quad | (x-1) \cdot (-6)$

0

$x_i^2 - 5x_i - 6 = 0 \qquad a = 1, \; b = -5, \; c = -6$

$x_{1/2} = \frac{5 \pm \sqrt{25 + 24}}{2} = \frac{5 \pm 7}{2} = \begin{cases} x_1 = 6 \\ x_2 = -1 \end{cases}$