

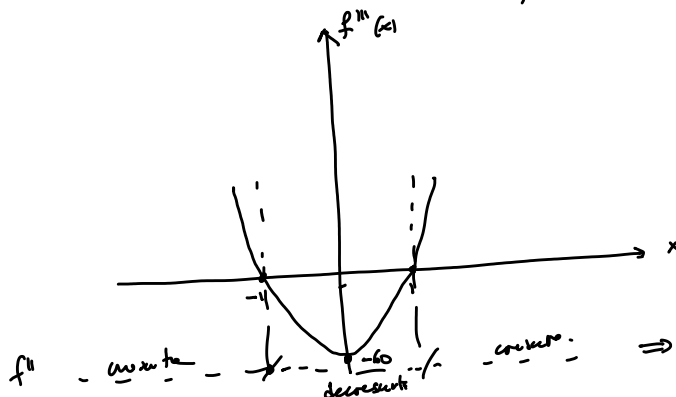
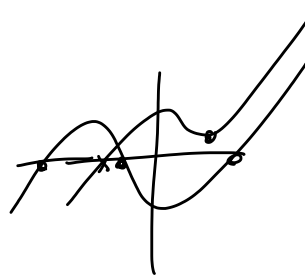
$$f(x) = x^5 - 10x^3 + 5x^2 - 8x + 10$$

Vogliamo fare il grafico
calcolando le radici reali di f con 3 cifre significative

$$f' = 5x^4 - 30x^2 + 10x - 8$$

$$f'' = 20x^3 - 60x + 10$$

$$f''' = 60x^2 - 60 = 60(x^2 - 1)$$



$\Rightarrow$ -1 è un pto. di max. loc. stretto di f''
 1 è " " min. loc. stretto di f''

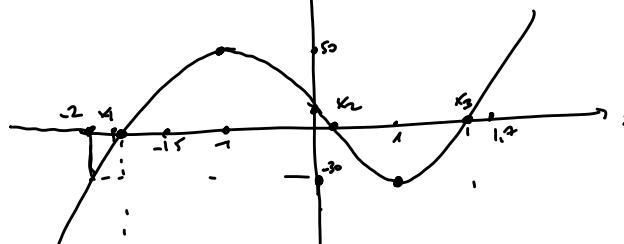
f'' è max in $(-\infty, -1)$

$$f''(-1) = 50, \quad f''(1) = -30$$

$$f''(x) = 20x^3 - 60x + 10$$

$$x \mapsto 20x^3 - 60x + 10$$

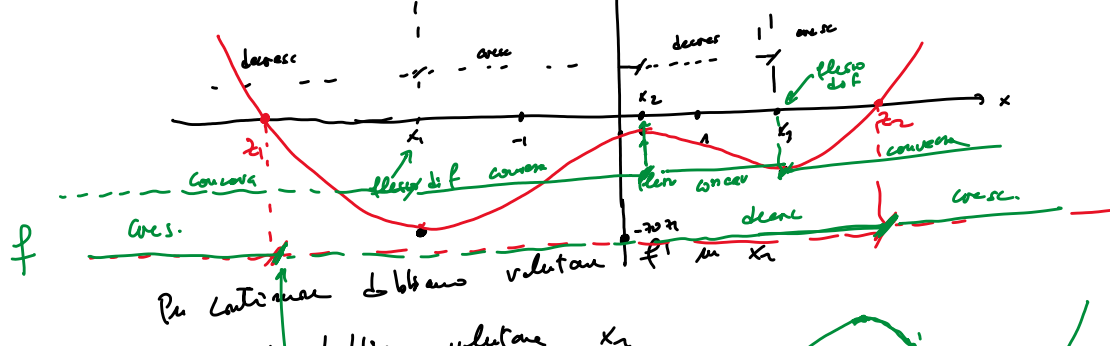
$$f''(x_i) = 0$$



$$x_1 < -1 < 0 < x_2 < 1 < x_3$$

$$f'(x) = 5x^4 - 30x^2 + 10x - 8$$

f' ha un massimo in x_1
un minimo in x_2
un massimo in x_3



x	f'
-2	-68
-2.5	-25
-3	97
-2.7	12
-2.6	-8
-2.65	14
-2.66	-0.61

2 punkte
 z_1 ist ein Max-Node



$$z_1 = -2.64 \dots$$

x	f''(x)	x	f''	x	f''
-2	-30	0.25	-4.68	1.7	6.76
-1.5	32.5	0.2	-1.84	1.5	-12.
-1.4	-13.174	0.18	-0.611	1.6	-4.08
-1.8	1.36	0.15	1.067	1.65	0.842
-1.85	-5.67	0.16	0.481	1.64	-0.181
-1.84	-4.19	0.17	-0.101		
-1.81	0.005				
-1.82	-1.371				

x	f'
2	-2.9
2.5	2.6
2.4	9.08
2.3	-3
2.35	2.7
2.34	1
2.33	-0.1

$$x_3 = 1.64 \dots$$

$$x_2 = 0.16 \dots$$

$$-1.82 < x_1 < -1.81$$

$$x_1 = -1.81 \dots$$

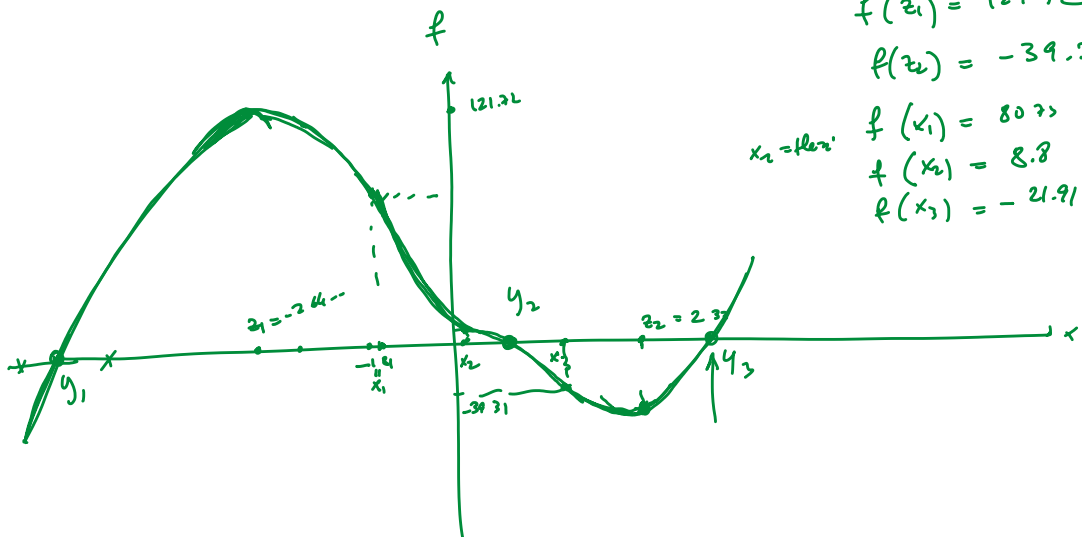
$$f'(-1.81) = -70.71 \Rightarrow f'(x_1) = -70.71 \dots$$

$$f'(-1.82) = -70.71$$

$$f'(0.16) = -7.16 \Rightarrow f'(x_2) = -7.16 \dots$$

$$f'(1.64) = -36.118 = f'(x_3)$$

$$f(x) \approx f(x_0) + f'(x_0)(x - x_0) \dots$$



$$f(z_1) = 121.72$$

$$f(z_2) = -39.31$$

$$f(x_1) = 80.73$$

$$f(x_2) = 8.8$$

$$f(x_3) = -21.91$$

$x_2 = \text{flex}$

f hat 3 roots y_1, y_2, y_3

Calculiere y_3 in 3 aufre decimalen signifikante

x	f(x)
2	-
2.5	-
2.7	-

Converge if $\boxed{\log a > 1}$, Diverge if $\log a \leq 1$

Converge if $\boxed{\log \log x > 1}$, Diverge if $\log \log x \leq 1$

CONVERGE if $\underline{x > e^e}$, DIVERGE if $x \leq e^e$