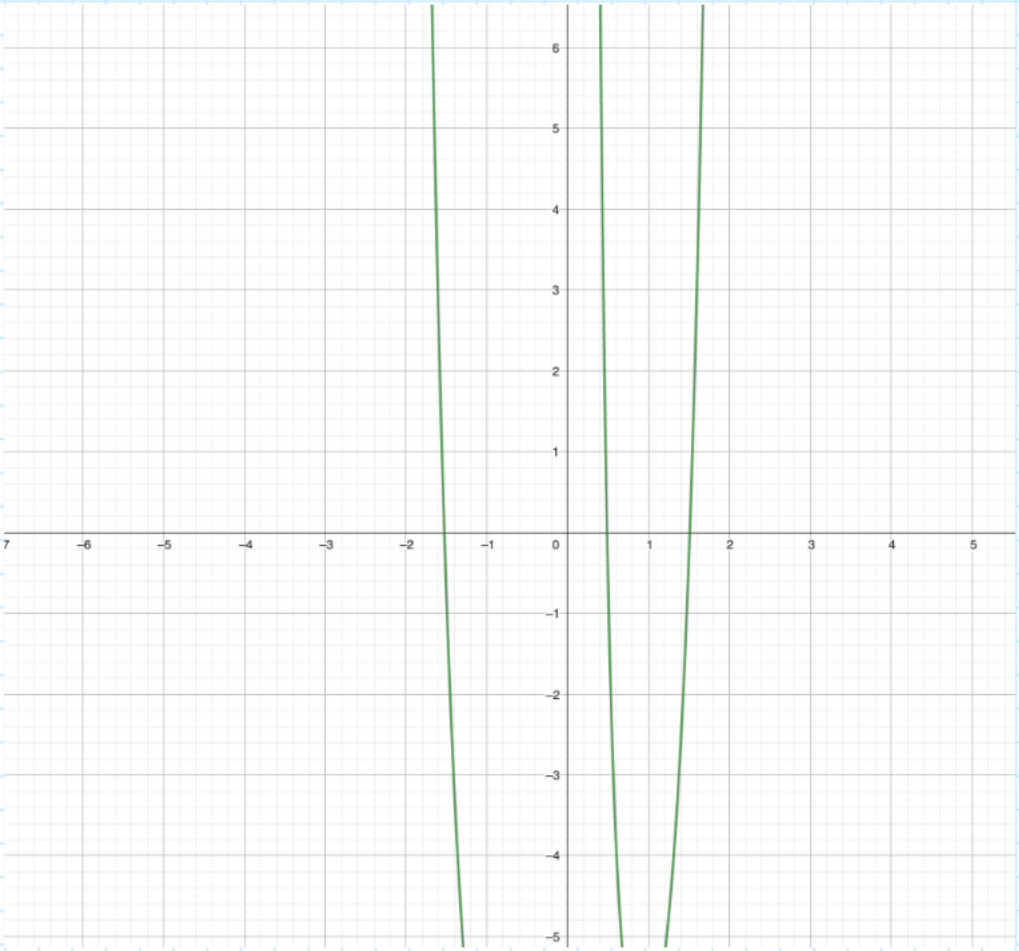
W06_p

Thursday, 24 October 2024 13:17



Aufgabe 1:

[-2, -1] , [0, 1] , [1,2]

$f(x)\ e^{x^2} \cdot x^{-3} - 10$

$f'(x)\ e^{x^2} \cdot 2x - 3 \cdot x^{-4}$

normal $X_{n+1} = X_n + \frac{f(x)}{f'(x)}$

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1)

x	x_{n+1}
2	1,7950
1,7950	1,6251
1,6251	1,5308
1,5308	1,5086

$f'(x_0) = 46,7160 \quad x_0 = 0,5$

vereinfacht $x_{n+1} = x_n - \frac{f(x_n)}{f(x_0)}$

x	x_{n+1}
0.5	0,4847
0,4847	0,4857
0,4857	0,4856
0,4856	0,4856

c) $x_{n+1} = x_n - \frac{x_n - x_{n-1}}{f(x_n) - f(x_{n-1})} \cdot f(x_n)$

$x_1 = -1,2 \quad x_0 = -1.0$

x_{n-1}	x_n	
-1.0	-1.2	-1.86102
-1,2	-1.86102	-1,34842
⋮	⋮	-1.48264
		-1,5504