Newtonverfahren zur Bestimmung von Nullstellen

$f(x) = -1x^5 - 2x^3 - 1x^2 - 3x - 1$ $\qquad$ $f'(x) = -5x^4 - 6x^2 - 2x - 3$

Startwert: 1

Schritt	xn	f(xn)	f'(xn)	$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$
0	1			
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

$f(x) = -1x^5 - 2x^4 + 1x^3 - 3x^2 + 1x + 6$ $\qquad$ $f'(x) = -5x^4 - 8x^3 + 3x^2 - 6x + 1$

Startwert: 1

Schritt	xn	f(xn)	f'(xn)	$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$
0	1			
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Lösung

Schritt	xn	f(xn)	f'(xn)	$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$
0	1,000	-8,00000	-16,00000	0,50000
1	0,50000	-3,03125	-5,81250	-0,02151
2	-0,02151	-0,93593	-2,95977	-0,33772
3	-0,33772	-0,01946	-3,07394	-0,34405
4	-0,34405	0,00006	-3,09219	-0,34403
5	-0,34403	0,00000	-3,09213	-0,34403
6	-0,34403	0,00000	-3,09213	-0,34403
7	-0,34403	0,00000	-3,09213	-0,34403
8	-0,34403	0,00000	-3,09213	-0,34403
9	-0,34403	0,00000	-3,09213	-0,34403
10	-0,34403	0,00000	-3,09213	-0,34403

Schritt	xn	f(xn)	f'(xn)	$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$
0	1,000	2,00000	-15,00000	1,13333
1	1,13333	-0,43366	-21,84128	1,11348
2	1,11348	-0,01149	-20,69153	1,11292
3	1,11292	-0,00001	-20,66006	1,11292
4	1,11292	0,00000	-20,66003	1,11292
5	1,11292	0,00000	-20,66003	1,11292
6	1,11292	0,00000	-20,66003	1,11292
7	1,11292	0,00000	-20,66003	1,11292
8	1,11292	0,00000	-20,66003	1,11292
9	1,11292	0,00000	-20,66003	1,11292
10	1,11292	0,00000	-20,66003	1,11292

© Sascha Hunsicker 2020