

0/3

1.1.a) $f(h) = 4(h^3 + h)^2 - h^4$

Für $h \rightarrow 0$ $f(h) = O(h^2)$ ✓, $f(h) = o(h)$ f

Rechenweg?

↑
Gruppen-
nummer.

b) $f(h) = \frac{\sin h}{h} - 1 = \sum_{j=0}^{\infty} \frac{h^j}{(j+1)!} - 1$

$f(h) = O(1)$ f

Rechenweg?

c) $g(h) = 4(h^3 + h)^2 - h^4$ Für $h \rightarrow \infty$

$g(h) = O(h^6)$ ✓, $g(h) = o(h^4)$ f

Rechenweg?

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1.2. $p(x) = 2x^4 - 4x^3 - 5x^2 + 7x + 11$

	2	-4	-5	7	11	✓
$\xi=2$		4	0	-10	-6	✓
	2	0	-5	-3	5	✓

ok.

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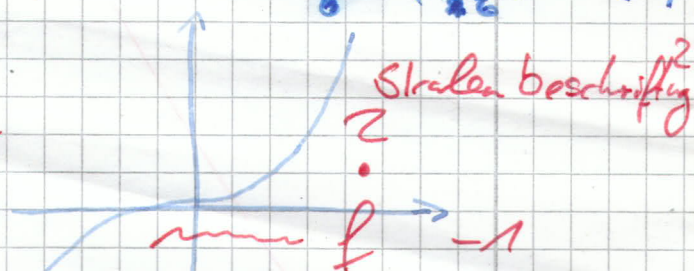
1.3 a) $y[x_0, x_1] = \frac{3-1}{1-0} = 2$ ✓; $y[x_1, x_2] = -\frac{1}{2}$ ✓
 $y[x_0, x_2] = 2$ ✓; $y[x_0, x_1, x_2] = -\frac{5}{6}$ ✓
 $y[x_1, x_2, x_3] = \frac{5}{6}$ ✓; $y[x_0, x_1, x_2, x_3] = \frac{5}{12}$ ✓

$y[x_i] = y_i$

$y[x_i, x_{i+1}] = \frac{y_{i+1} - y_i}{x_{i+1} - x_i}$

0	1			
1	3	2		
3	2	$-\frac{1}{2}$	$-\frac{5}{6}$	
4	4	2	$\frac{5}{6}$	$\frac{5}{12}$

$p(x) = 1 + x(2 + (x-1)(-\frac{5}{6} + (x-3)(\frac{5}{12})))$



b) $y[x_3, x_4] = 1$ ✓; $y[x_2, x_3, x_4] = -\frac{1}{3}$ ✓; $y[x_1, x_2, x_3, x_4] = -\frac{4}{15}$ ✓

$y[x_0, x_1, x_2, x_3, x_4] = -\frac{41}{360} \Rightarrow p(x) = 1 + x(2 + (x-1)(\frac{5}{6} + (x-3)(\frac{5}{12} + (x-4)(-\frac{4}{15}))))$

0	1				
1	3	2			
3	2	$-\frac{1}{2}$	$-\frac{5}{6}$		
4	4	2	$\frac{5}{6}$	$\frac{5}{12}$	
6	6	1	$-\frac{1}{3}$	$-\frac{4}{15}$	$-\frac{41}{360}$

