Mathe 07

Nick Daiber

December 2, 2024

3

a

i	1	2	3	4
x_i	0	1	4	5
y_i	4	3	3	3

$L_1 = \frac{(x-1)(x-4)(x-5)}{(-1)(-3)(-5)}$

$L_2 = \frac{(x)(x-4)(x-5)}{1\cdot(-3)(-5)}$

$L_3 = \frac{(x)(x-1)(x-5)}{4\cdot 3(-1)}$

$L_4 = \frac{(x)(x-1)(x-4)}{5\cdot 4\cdot 1}$

$f(x) = 4L_1(x) + 3L_2(x) + 3L_3(x) + 3L_4(x) = x^3 + 4x^2 + x + 4$

b

x	$f(x)$
0	4
1	3
2	2
3	0
4	3
5	3
6	6

$f(x) = (x-c)g(x) = (x-3)g(x)$

Koeffizienten	1	4	1	4
$c = 3$		$1\cdot 3 = 0$		$1\cdot 3 = 3$
g:	0	1	0	1

$g(x) = x^2 + 1$