LÖSUNG ZU 274:

$f(x) = ax^3 + bx^2 + cx + d$
$f'(x) = 3ax^2 + 2bx + c$
$f''(x) = 6ax + 2b$

I: $f''(-1) = 0$ t: $6x + 3y = -5$ /: 3
II: $f'(-3) = 6$ $2x + y = -\frac{5}{3}$ / - 2x
III: $f'(-1) = -2$ $y = -2x - \frac{5}{3}$ $x = -1$ $\rightarrow y = 2 - \frac{5}{3} = \frac{1}{3}$
IV: $f(-1) = \frac{1}{3}$

I: $0 = -6a + 2b$ $2b = 6a$ $b = 3a$
II: $6 = 27a - 6b + c$
III: $-2 = 3a - 2b + c$ / · (- 1)
IV: $\frac{1}{3} = -a + b - c + d$

II ∩ III · (- 1): $6 = 27a - 6b + c$
$\underline{2 = -3a + 2b - c}$
$8 = 24a - 4b$ / : 4
$2 = 6a - b$ ….V

I ∩ IV: $2 = 6a - b = 6a - 3b$
$2 = 3a$ / : 3
$\frac{2}{3} = a$

a in I einsetzen: $b = 3a$ → $b = 2$

a und b in II einsetzen: $6 = 18 - 12 + c$ $6 = 6 + c$ $c = 0$

in IV einsetzen: $\frac{1}{3} = -\frac{2}{3} + 2 + d$ $\frac{1}{3} = 1\frac{1}{3} + d$ $d = -1$

$f(x) = \frac{2}{3}x^3 + 2x^2 - 1$