4.14 Polynome 4. Grades

a) $f(x) = x^4 - 81$

b) $f(x) = |x^4 - 81|$

c) $f(x) = -2x^4 + 6x^2 - 6$

d) $0 = (-3)^4 a + (-3)^2 5 - 3 \Leftrightarrow 0 = 3^4 a + 9\frac{1}{36}(3 - 6^4 a) - 3 \Rightarrow 0 = 81a + 9\frac{1}{12} - 324a - 3 \Leftrightarrow -\frac{3}{4} = 49a \Leftrightarrow -\frac{3}{196} = a$

$0 = 6^4 a + 6^2 5 - 3 \Leftrightarrow \frac{1}{36}(3 - 6^4 a) = 5 \Leftrightarrow \frac{1}{36}(3 - 6^4 \cdot (-\frac{3}{196})) = 5 \Leftrightarrow \frac{1}{12} - 36 \cdot (-\frac{3}{196}) = 5 \Leftrightarrow \frac{1}{12} + \frac{108}{196} = 5 \Leftrightarrow \frac{373}{588} = 5$

$\Rightarrow f(x) = -\frac{3}{196}x^4 + \frac{373}{588}x^2 - 3$ → keine Nullstelle bei -3?