

Klasse	Art	Schwierigkeit	Thema	S.56
11	Üben	X	Ableitungsregeln Teil 1	9

a) $g'(x) = (12x^2 - 2)(x^2 + 2x - 2) + (4x^3 - 2x)(2x + 2) = \dots$

b) $f'(x) = (2x - a)(x^2 - a) + (x^2 - ax + 1) \cdot 2x = \dots$

c) $f'(x) = \frac{0 \cdot (1 + x^2) - 3a \cdot 2x}{(1 - x^2)^2} = \frac{-6ax}{(1 - x^2)^2}$

d) $f(a) = \frac{1}{1 + x^2} \cdot 3a \rightarrow f'(a) = \frac{1}{1 + x^2} \cdot 3 = \frac{3}{1 + x^2}$

e) $g'(x) = \frac{4x^3(x^4 + 4) - x^4 \cdot 4x^3}{(x^4 + 4)^2} = \frac{16x^3}{(x^4 + 4)^2}$

f) $h'(x) = \frac{2tx(x+1) - (tx^2 + 2) \cdot 1}{(x+1)^2} = \frac{tx^2 + 2tx - 2}{(x+1)^2}$