

Übungen in Analysis $\diamond$ Exercices en Analyse $\diamond$ T. B2 $\diamond$ II / 5

Probl. 1 (a) $f(x) = x^4 + x^6 \rightsquigarrow f'(x) = ?$

(b) $f(x) = x^4 \ln(x) \rightsquigarrow f'(x) = ?$

(c) $f(x) = \frac{x^4}{\ln(x)} \rightsquigarrow f'(x) = ?$

(d) $f(x) = \ln(x^4) \rightsquigarrow f'(x) = ?$

(e) $f(x) = x e^{(\frac{1}{x})} \rightsquigarrow f'(x) = ?$

Probl. 2 $f(x) = 7x^4 + 12x^3 - x^2 + 8x + 9 \rightsquigarrow f'(x), f''(x), f'''(x), f^{(4)}(x) = ?, \text{Plot ?} \bullet \text{plot ?}$

Probl. 3 (a) $f(x) = \sin(x), f'(x_0) = 0.9 \rightsquigarrow x_0 = ?$

(b) $f'(x_0) = \tan(\alpha_0), \alpha_0 = ?$

(c) $x_1 = 0.9 \Rightarrow t_1(x) = ?, \text{Plot, Tangente!} \bullet \text{Plot, tangente!}$

(d) $t(0) = ?, t(x_2) = 0 \Rightarrow x_2 = ?$

Probl. 4 $f(x) = ax^3 + bx^2 + cx + d, f(2) = 0, f'(1) = 1, f''(-3) = 0, f(3) = -1$
 $\rightsquigarrow a, b, c, d = ?, \text{Plot!} \bullet \text{plot!}$

Probl. 5 Arbeite an der Einführung in *Mathematica*! Repetiere zudem den Stoff für den nächsten Test!

$\bullet$ *Travailler à l'introduction dans Mathematica! En plus répéter la matière pour le test prochain*