

Aufgabenblatt 7

Aufgabe 1

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

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

b)

$$f(x) = \frac{\sin(x)}{x}$$

$$f'(x) = \frac{\cos(x)x - \sin(x)}{x^2}$$

c)

$$f(x) = e^{-2x} \cos(3x)$$

$$f'(x) = -2e^{-2x} \cos(3x) + e^{-2x} \sin(3x) 3$$

d)

$$f(x) = \ln(x + \sqrt{1+x^2})$$

$$u = \ln(x)$$

$$u' = \frac{1}{x}$$

$$v = x + \sqrt{1+x^2}$$

$$v' = 1 + \frac{1}{2\sqrt{1+x^2}}$$

$$f'(x) = \frac{1}{x+\sqrt{1+x^2}} * \left(1 + \frac{1}{2\sqrt{1+x^2}}\right)$$

Prüfen!!!!

e)