0.1 84. Hausaufgabe

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Leite ab:

a) $f(x) = x + \ln x;$ $f'(x) = 1 + \frac{1}{x};$

b) $f(x) = x \ln x;$ $f'(x) = x\frac{1}{x} + \ln x = 1 + \ln x;$

c) $f(x) = \ln -x;$ $f'(x) = \frac{1}{x};$

d) $f(x) = -\ln 2x;$ $f'(x) = -\frac{2}{2x} = -\frac{1}{x} = (-\ln x)';$

e) $f(x) = \ln x^2 = 2\ln x;$ $f'(x) = \frac{1}{x^2} \cdot 2x = \frac{2}{x};$

f) $f(x) = (\ln x)^2;$ $f'(x) = 2\ln x \cdot \frac{1}{x};$

g) $f(x) = \ln \sqrt{x};$ $f'(x) = \frac{1}{\sqrt{x}}\frac{1}{2\sqrt{x}} = \frac{1}{2x};$

h) $f(x) = \sqrt{\ln x};$ $f'(x) = \frac{1}{2\sqrt{\ln x}}\frac{1}{x};$

i) $f(x) = \ln \sin x;$ $f'(x) = \frac{1}{\sin x} \cdot \cos x;$

j) $f(x) = \sin \ln x;$ $f'(x) = \cos \ln x \cdot \frac{1}{x};$

k) $f(x) = \ln x^e;$ $f'(x) = \frac{1}{x^e} \cdot ex^{e-1};$

l) $f(x) = \ln e^x = x;$ $f'(x) = \frac{1}{e^x} \cdot e^x = 1;$