LS 10 S 178

Nr. 2) a) $f(x) = \sin(x) + x$

$f'(x) = \cos(x) + 1$

b) $f(x) = 2 \cdot \cos(x) + \frac{1}{2} \cdot x^2$

$f'(x) = -2 \cdot \sin(x) + x$

c) $F(x) = 0{,}5 \cdot \sin(x) - 0{,}75 \cdot x^2$

$f'(x) = +0{,}5 \cdot \cos(x) - 1{,}5x$

d) $F(x) = \sin(x) + 2x - 3x^3$

$f'(x) = \cos(x) + 2 - 9x^2$

e) $f(x) = \cos(x) + 3x^4 - 2\sin(x)$

$F'(x) = -\sin(x) + 12x^3 - 2 \cdot \cos(x)$

f) $f(t) = \cos(t) - \sin(t) - t^3$

$f'(t) = -\sin(t) - \cos(t) - 3t^2$

g) $f(t) = \cos(t) + \frac{5}{t} = \cos(t) + 5 \cdot t^{-1}$

$f'(t) = -\sin(t) + 5 \cdot (-1) \cdot t^{-2} = -\sin(t) - \frac{5}{t^2}$

h) $g(t) = -2{,}5 \sin(t) + \sqrt{t} = -2{,}5 \cdot \sin(t) + t^{\frac{1}{2}}$

$g'(t) = -2{,}5 \cdot \cos(t) + \frac{1}{2} t^{-\frac{1}{2}} = -2{,}5\cos(t) + \frac{1}{2 \cdot \sqrt{t}}$

i) $h(s) = -\cos(s) - \frac{2}{s^2} = -\cos(s) - 2 \cdot s^{-2}$

$h'(s) = \sin(s) + 4 \cdot s^{-3} = \sin(s) + \frac{4}{s^3}$

0. Fell