

Nr. 1)  $f(x) = 2 \cdot \sin(4x) \Rightarrow f'(x) = 2 \cdot \cos(4x) \cdot 4$

$f'(x) = 8 \cdot \cos(4x)$

$g(x) = 0,5(1-3x)^4 \Rightarrow g'(x) = \frac{1}{2} \cdot 4(1-3x)^3 \cdot (-3)$

$g'(x) = -6 \cdot (1-3x)^3$

Nr. 2 | a)  $f(x) = (x+2)^4 \Rightarrow f'(x) = 4(x+2)^3$

b)  $f(x) = (8x+2)^3 \Rightarrow f'(x) = 3 \cdot (8x+2)^2 \cdot 8 = 24(8x+2)^2$

(3.c)  $f(x) = \frac{1}{(\frac{1}{2}-5x)^3} = (\frac{1}{2}-5x)^{-3} \Rightarrow f'(x) = -3 \cdot (\frac{1}{2}-5x)^{-4} \cdot (-5)$   
 $f'(x) = \frac{15}{(\frac{1}{2}-5x)^4}$

c)  $f(x) = (\frac{1}{2}-5x)^3 \Rightarrow f'(x) = 3 \cdot (\frac{1}{2}-5x)^2 \cdot (-5) = -15 \cdot (\frac{1}{2}-5x)^2$

d)  $f(x) = \frac{1}{4} \cdot (x^2-5)^2 \Rightarrow f'(x) = \frac{1}{4} \cdot 2 \cdot (x^2-5)^1 \cdot 2x$   
 $= x \cdot (x^2-5) = x^3 - 5x$

e)  $f(x) = (8x-7)^{-1} \Rightarrow f'(x) = -1 \cdot (8x-7)^{-2} \cdot 8 = \frac{-8}{(8x-7)^2}$

f)  $f(x) = (5-x)^{-4} \Rightarrow f'(x) = -4(5-x)^{-5} \cdot (-1) = \frac{4}{(5-x)^5}$

g)  $f(x) = (15x-3)^{-2} \Rightarrow f'(x) = -2 \cdot (15x-3)^{-3} \cdot 15 = \frac{-30}{(15x-3)^3}$

h)  $f(x) = (15x-3x^2)^{-2} \Rightarrow f'(x) = -2 \cdot (15x-3x^2)^{-3} \cdot (15-6x)$

$f'(x) = \frac{-30+12x}{(15x-3x^2)^3}$