

Nr. 4.) a) $f(x) = u(v(x))$

$$v(x) = x^3; u(x) = 3x + 1 \Rightarrow f(x) = 3(x^3) + 1 = \underline{\underline{3x^3 + 1}}$$

b) $f(x) = (x^2 + 1)^2; u(x) = x^2 \Rightarrow v(x) = \underline{\underline{x^2 + 1}}$

c) $v(x) = x^2 - 4; u(v(x)) = \frac{1}{2(x^2 - 4)} \Rightarrow u(x) = \underline{\underline{\frac{1}{2x}}}$

d) $u(x) = 2 \cdot \sqrt{x}; u(v(x)) = 2\sqrt{3 - 0,5x} \Rightarrow v(x) = \underline{\underline{3 - 0,5x}}$

Nr. 5) a) $u(x) = 1 - x^2; v(x) = (1 - x)^2$

$$f(x) = u(v(x)) = 1 - ((1 - x)^2)^2 = \underline{\underline{1 - (1 - x)^4}}$$

$$g(x) = v(u(x)) = (1 - (1 - x^2))^2 = \underline{\underline{(x^2)^2 = x^4}}$$

b) $u(x) = (x - 1)^2; v(x) = x + 1$

$$f(x) = u(v(x)) = ((x + 1) - 1)^2 = \underline{\underline{x^2}}$$

$$g(x) = v(u(x)) = (x - 1)^2 + 1 = x^2 - 2x + 1 + 1 = \underline{\underline{x^2 - 2x + 2}}$$

c) $u(x) = \sin(x); v(x) = x + 1$

$$f(x) = u(v(x)) = \underline{\underline{\sin(x + 1)}}$$

$$g(x) = v(u(x)) = \underline{\underline{\sin(x) + 1}}$$

d) $u(x) = \sqrt{2x}; v(x) = x - 1$

$$f(x) = u(v(x)) = \sqrt{2(x - 1)} = \underline{\underline{\sqrt{2x - 2}}}$$

$$g(x) = v(u(x)) = \underline{\underline{\sqrt{2x} - 1}}$$

e) $u(x) = \frac{1}{x + 1}; v(x) = \cos(x)$

$$f(x) = u(v(x)) = \underline{\underline{\frac{1}{\cos(x) + 1}}}$$

$$g(x) = v(u(x)) = \underline{\underline{\cos\left(\frac{1}{x + 1}\right)}}$$

f.) $f(x) = u(v(x)) = 2 - 1 = \underline{\underline{1}}$

$$g(x) = v(u(x)) = \underline{\underline{1}}$$