Zadatak 10. Odredi kompozicije $f^2 = f \circ f$, $f^3 = f \circ f^2, \ldots, f^n = f \circ f^{n-1}$ za funkcije

1) $f(x) = x - 2$; **2)** $f(x) = 2x - 1$;

3) $f(x) = x^2$.

Rješenje. **1)** $f(x) = x - 2$

$$f^2(x) = x - 2 - 2 = x - 4$$
$$f^3(x) = x - 2 - 4 = x - 6$$
$$f^4(x) = x - 2 - 6 = x - 8$$
$$\vdots$$
$$f^n(x) = x - 2n$$

2) $f(x) = 2x - 1$

$$f^2(x) = 2(2x - 1) - 1 = 4x - 3$$
$$f^3(x) = 4(2x - 1) - 3 = 8x - 7$$
$$f^4(x) = 8(2x - 1) - 7 = 16x - 15$$
$$\vdots$$
$$f^n(x) = 2^n \cdot x - 2n + 1$$

3) $f(x) = x^2$

$$f^2(x) = (x^2)^2 = x^{2^2}$$
$$f^3(x) = (x^{2^2})^2 = x^{2^3}$$
$$\vdots$$
$$f^n(x) = x^{2^n}$$