Problem 1D. Determine all functions $f : \mathbb{R}^+ \to \mathbb{R}^+$ satisfying

$$f(x + f(y)) = f(x + y) + f(y)$$

for all $x, y \in \mathbb{R}^+$ (here $\mathbb{R}^+$ denotes the set of all positive real numbers).

Problem 2D. Determine all functions $f, g : \mathbb{R} \to \mathbb{R}$ satisfying

$$f(x + g(y)) = xf(y) - yf(x) + g(x)$$

for all $x, y \in \mathbb{R}$.

Problem 3D. Determine all functions $f, g : \mathbb{R} \to \mathbb{R}$ satisfying

(1) $f(xg(y + 1)) + y = xf(y) + f(x + g(y))$, for all $x, y \in \mathbb{R}$;

(2) $f(0) + g(0) = 0$.

Problem 4D. Determine all functions $f : \mathbb{Q} \to \mathbb{Q}$ satisfying

$$f(xf(x) + y) = f(y) + x^2$$

for all $x, y \in \mathbb{Q}$.