

Zadatak 25. Ako je $f\left(\frac{x-1}{x+1}\right) = \frac{x}{x-2}$, koliko je $f\left(\frac{x+1}{x-1}\right)$?

Rješenje.

$$f\left(\frac{x-1}{x+1}\right) = \frac{x}{x-2},$$

$$\frac{x-1}{x+1} = t \iff x-1 = tx+t \iff (1-t)x = t+1 \iff x = \frac{1+t}{1-t};$$

$$f(t) = \frac{\frac{1+t}{1-t}}{\frac{1+t}{1-t} - 2} = \frac{1+t}{1+t-2+2t} = \frac{t+1}{3t-1}, \quad t \neq \frac{1}{3};$$

$$f\left(\frac{x+1}{x-1}\right) = \frac{\frac{x+1}{x-1} + 1}{3\frac{x+1}{x-1} - 1} = \frac{x+1+x-1}{3x+3-x+1} = \frac{2x}{2x+4} = \frac{x}{x+2}.$$