

Zadatak 9. Ako je $f(x) = \frac{ax}{2x+3}$, $x \neq -\frac{3}{2}$, odredi $a \in \mathbf{R}$ tako da bude $(f \circ f)(x) = x$ za sve x , $x \neq -\frac{3}{2}$.

Rješenje. $f(x) = \frac{ax}{2x+3}$, $x \neq -\frac{3}{2}$, $a \in \mathbf{R}$

$$(f \circ f)(x) = x, \quad x \neq -\frac{3}{2}$$

$$(f \circ f)(x) = \frac{a \frac{ax}{2x+3}}{2 \cdot \frac{ax}{2x+3} + 3} = \frac{a^2 x}{2ax + 6x + 9} = \frac{a^2 x}{(2a+6)x + 9} = x$$

$$\implies \frac{a^2}{(2a+6)x + 9} = 1$$

$$2a + 6 = 0 \implies a = -3;$$

$$\frac{(-3)^2}{9} = \frac{9}{9} = 1.$$