

$$\alpha) \quad \text{Av} \quad \boxed{f(x_1) = f(x_2)} \Rightarrow f(f(x_1)) = f(f(x_2)) \quad \overset{(f \circ f)(x) = f(x) + e^x - 1}{\Rightarrow}$$

$$\Rightarrow f(x_1) + e^{x_1} - 1 = f(x_2) + e^{x_2} - 1 \quad \overset{f(x_1) = f(x_2)}{\Rightarrow} \quad e^{x_1} - 1 = e^{x_2} - 1 \Rightarrow e^{x_1} = e^{x_2} \Rightarrow \boxed{x_1 = x_2}$$

Άρα η f είναι 1-1

$$\beta) \quad f(x^3 - 5x) = f(2x - 6) \Rightarrow x^3 - 5x = 2x - 6 \Rightarrow x^3 - 7x + 6 = 0 \quad \overset{\text{ρίζα το } x=1 \text{ παραγοντοποίηση με Horner}}{\Rightarrow}$$

$$\Rightarrow (x-1)(x+3)(x-2) = 0 \Rightarrow \boxed{x=1 \quad \text{ή} \quad x=2 \quad \text{ή} \quad x=-3}$$