Επίσης, $A_{f\circ f} = \{x \in [0,4]$ ώστε $f(x) \in [0,4]\} = \dots = [0,4]$

με $(f\circ f)(x) = f(f(x)) = f\left((\sqrt{x}-2)^2\right) = \left(\sqrt{(\sqrt{x}-2)^2} - 2\right)^2 \Rightarrow$

$f(f(x)) = \left(|\sqrt{x}-2| - 2\right)^2$, όμως, αφού $x \in [0,4]$, $\sqrt{x}-2 \le 0$

συνεπώς $f(f(x)) = (-\sqrt{x}+2-2)^2 = x$.

Επίσης, αν $y = f(x) \Rightarrow y = (\sqrt{x}-2)^2 \Rightarrow |\sqrt{x}-2| = \sqrt{y} \Rightarrow$

$-\sqrt{x}+2 = \sqrt{y} \Rightarrow \sqrt{x} = 2-\sqrt{y} \Rightarrow x = (2-\sqrt{y})^2 = (\sqrt{y}-2)^2$

δηλαδή $f^{-1}(x) = (\sqrt{x}-2)^2 = f(x)$.

Γ3. $(f\circ f)(x^2) = f^{-1}(x) \Rightarrow x^2 = (\sqrt{x}-2)^2 \Rightarrow (x-\sqrt{x}+2)(x+\sqrt{x}-2) = 0$

$\Rightarrow \dots \Rightarrow x = 1$

Γ4. i. $\lim\limits_{x\to 9} \dfrac{\sqrt[3]{x-1}+\sqrt{x}-5}{(\sqrt{x}-2)^2-1} = \lim\limits_{x\to 9} \dfrac{\sqrt[3]{x-1}-2+\sqrt{x}-3}{(\sqrt{x}-3)(\sqrt{x}-1)} \overset{:(x-9)}{=\!=}$

$\lim\limits_{x\to 9} \dfrac{\dfrac{\sqrt[3]{x-1}-2}{x-9} + \dfrac{\sqrt{x}-3}{x-9}}{\dfrac{(\sqrt{x}-3)(\sqrt{x}-1)}{x-9}} = \lim\limits_{x\to 9} \dfrac{\dfrac{1}{\sqrt[3]{(x-1)^2}+2\sqrt[3]{x-1}+4} + \dfrac{1}{\sqrt{x}+3}}{\dfrac{\sqrt{x}-1}{\sqrt{x}+3}} =$

$= \dfrac{\frac{1}{12}+\frac{1}{6}}{\frac{2}{6}} = \dfrac{\frac{1}{4}}{\frac{1}{3}} = \dfrac{3}{4}$.

ii) $\lim\limits_{x\to 4} \dfrac{\eta\mu(\sqrt{x}-2)^2}{x-4} = \lim\limits_{x\to 4} \dfrac{\eta\mu(\sqrt{x}-2)^2}{(\sqrt{x}-2)(\sqrt{x}+2)} = (y = \sqrt{x}-2)$

$\lim\limits_{y\to 0} \dfrac{\eta\mu y^2}{y\cdot(y+4)} = \lim\limits_{y\to 0} \dfrac{\eta\mu y^2}{y^2}\cdot\dfrac{y}{y+4} = 0$.

Γ5. Αν $y(t) = 1 \Rightarrow (\sqrt{x}-2)^2 = 1 \Rightarrow \sqrt{x}-2 = 1$ ή $\sqrt{x}-2 = -1 \Rightarrow$

$x = 9$ ή $x = 1$, Δεκτή η $x = 1$. Συνεπώς $x(t_0) = 1$, $y(t_0) = 1$, $x'(t_0) = 1$.

$y(t) = (\sqrt{x(t)}-2)^2$ άρα $y'(t) = 2(\sqrt{x(t)}-2)\cdot\dfrac{1}{2\sqrt{x(t)}}\cdot x'(t) = \Rightarrow y'(t_0) = -1$.