4.2 1)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \frac{2x_1-1}{5x_1+4}=\frac{2x_2-1}{5x_2+4} \overset{\text{χιαστί}}{\Rightarrow} (2x_1-1)(5x_2+4)=(2x_2-1)(5x_1+4) \Rightarrow$

$\Rightarrow \cancel{10x_1x_2}+8x_1-5x_2\cancel{-4}=\cancel{10x_2x_1}+8x_2-5x_1\cancel{-4} \Rightarrow 13x_1=13x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 2)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \frac{3x_1-1}{2x_1+5}=\frac{3x_2-1}{2x_2+5} \overset{\text{χιαστί}}{\Rightarrow} (3x_1-1)(2x_2+5)=(3x_2-1)(2x_1+5) \Rightarrow$

$\Rightarrow \cancel{6x_1x_2}+15x_1-2x_2\cancel{-5}=\cancel{6x_2x_1}+15x_2-2x_1\cancel{-5} \Rightarrow 17x_1=17x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 3)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \frac{x_1-3}{1-2x_1}=\frac{x_2-3}{1-2x_2} \overset{\text{χιαστί}}{\Rightarrow} (x_1-3)(1-2x_2)=(x_2-3)(1-2x_1) \Rightarrow$

$\Rightarrow x_1-\cancel{2x_1x_2}-\cancel{3}+6x_2=x_2-\cancel{2x_2x_1}-\cancel{3}+6x_1 \Rightarrow -5x_1=-5x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 4)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \frac{2x_1-1}{3x_1+2}=\frac{2x_2-1}{3x_2+2} \overset{\text{χιαστί}}{\Rightarrow} (2x_1-1)(3x_2+2)=(2x_2-1)(3x_1+2) \Rightarrow$

$\Rightarrow \cancel{6x_1x_2}+4x_1-3x_2\cancel{-2}=\cancel{6x_2x_1}+4x_2-3x_1\cancel{-2} \Rightarrow 7x_1=7x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 5)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \frac{4x_1+2}{7x_1-1}=\frac{4x_2+2}{7x_2-1} \overset{\text{χιαστί}}{\Rightarrow} (4x_1+2)(7x_2-1)=(7x_1-1)(4x_2+2) \Rightarrow$

$\Rightarrow \cancel{28x_1x_2}-4x_1+14x_2\cancel{-2}=\cancel{28x_2x_1}+14x_1-4x_2\cancel{-2} \Rightarrow -18x_1=-18x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 6)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 3\sqrt{2x_1-5}\cancel{+7}=3\sqrt{2x_2-5}\cancel{+7} \Rightarrow \cancel{3}\sqrt{2x_1-5}=\cancel{3}\sqrt{2x_2-5} \Rightarrow$

$\Rightarrow \sqrt{2x_1-5}^2=\sqrt{2x_2-5}^2 \Rightarrow 2x_1-\cancel{5}=2x_2-\cancel{5} \Rightarrow 2x_1=2x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 7)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \cancel{1}-2\sqrt{x_1+3}=\cancel{1}-2\sqrt{x_2+3} \Rightarrow \cancel{-2}\sqrt{x_1+3}=\cancel{-2}\sqrt{x_2+3} \Rightarrow$

$\Rightarrow \sqrt{x_1+3}=\sqrt{x_2+3} \Rightarrow x_1+\cancel{3}=x_2+\cancel{3} \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 8)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \dfrac{\sqrt{x_1}-2}{\sqrt{x_1}+2}=\dfrac{\sqrt{x_2}-2}{\sqrt{x_2}+2} \overset{\text{χιαστί}}{\Rightarrow} \left(\sqrt{x_1}-2\right)\left(\sqrt{x_2}+2\right)=\left(\sqrt{x_2}-2\right)\left(\sqrt{x_1}+2\right) \Rightarrow$

$\Rightarrow \cancel{\sqrt{x_1x_2}}+2\sqrt{x_1}-2\sqrt{x_2}\cancel{-4}=\cancel{\sqrt{x_2x_1}}+2\sqrt{x_2}-2\sqrt{x_1}\cancel{-4} \Rightarrow \cancel{4}\sqrt{x_1}=\cancel{4}\sqrt{x_2} \Rightarrow$

$\Rightarrow \sqrt{x_1}=\sqrt{x_2} \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 9)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 4x_1^3+\cancel{3}=4x_2^3+\cancel{3} \Rightarrow \cancel{4}x_1^3=\cancel{4}x_2^3 \Rightarrow x_1^3=x_2^3 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 10)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \dfrac{x_1^3}{x_1^3+1}=\dfrac{x_2^3}{x_2^3+1} \overset{\text{χιαστί}}{\Rightarrow} x_1^3\left(x_2^3+1\right)=x_2^3\left(x_1^3+1\right) \Rightarrow$

$\Rightarrow \cancel{x_1^3x_2^3}+x_1^3=\cancel{x_2^3x_1^3}+x_2^3 \Rightarrow x_1^3=x_2^3 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 11)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 4\cdot 3^{x_1}+\cancel{7}=4\cdot 3^{x_2}+\cancel{7} \Rightarrow \cancel{4}\cdot 3^{x_1}=\cancel{4}\cdot 3^{x_2} \Rightarrow 3^{x_1}=3^{x_2} \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 12)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 2e^{2x_1+1}+\cancel{8}=2e^{2x_2+1}+\cancel{8} \Rightarrow \cancel{2}e^{2x_1+1}=\cancel{2}e^{2x_2+1} \Rightarrow e^{2x_1+1}=e^{2x_2+1} \Rightarrow$

$\Rightarrow 2x_1+\cancel{1}=2x_2+\cancel{1} \Rightarrow \cancel{2}x_1=\cancel{2}x_2 \Rightarrow \boxed{x_1=x_2}$

Άρα η f είναι 1–1

4.2 13)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 3e^{4\sqrt{x_1}-5}-\cancel{6}=3e^{4\sqrt{x_2}-5}-\cancel{6} \Rightarrow \cancel{3}e^{4\sqrt{x_1}-5}=\cancel{3}e^{4\sqrt{x_2}-5} \Rightarrow$

$\Rightarrow e^{4\sqrt{x_1}-5}=e^{4\sqrt{x_2}-5} \Rightarrow 4\sqrt{x_1}-\cancel{5}=4\sqrt{x_2}-\cancel{5} \Rightarrow \cancel{4}\sqrt{x_1}=\cancel{4}\sqrt{x_2} \Rightarrow$

$\Rightarrow \sqrt{x_1}^2=\sqrt{x_2}^2 \Rightarrow \boxed{x_1=x_2}$

4.2 14)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow 3\left(\dfrac{1}{2}\right)^{5x_1-1}-\cancel{4}=3\left(\dfrac{1}{2}\right)^{5x_2-1}-\cancel{4} \Rightarrow \cancel{3}\left(\dfrac{1}{2}\right)^{5x_1-1}=\cancel{3}\left(\dfrac{1}{2}\right)^{5x_2-1} \Rightarrow$

$\Rightarrow \left(\dfrac{1}{2}\right)^{5x_1-1}=\left(\dfrac{1}{2}\right)^{5x_2-1} \Rightarrow 5x_1-\cancel{1}=5x_2-\cancel{1} \Rightarrow \cancel{5}x_1=\cancel{5}x_2 \Rightarrow x_1=x_2$

Άρα η f είναι 1–1

4.2 15)

Αν $\boxed{f(x_1)=f(x_2)} \Rightarrow \dfrac{e^{x_1}}{e^{x_1}+3}=\dfrac{e^{x_2}}{e^{x_2}+3} \overset{\text{χιαστί}}{\Rightarrow} e^{x_1}\left(e^{x_2}+3\right)=e^{x_2}\left(e^{x_1}+3\right) \Rightarrow$

$\Rightarrow \cancel{3}e^{x_1} = \cancel{3}e^{x_2} \Rightarrow e^{x_1} = e^{x_2} \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 16)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow 3\ln x_1 \cancel{-7} = 3\ln x_2 \cancel{-7} \Rightarrow \cancel{3}\ln x_1 = \cancel{3}\ln x_1 \Rightarrow \ln x_1 = \ln x_1 \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 17)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow \dfrac{\ln x_1 + 5}{\cancel{4}} = \dfrac{\ln x_2 + 5}{\cancel{4}} \Rightarrow \ln x_1 + \cancel{5} = \ln x_2 + \cancel{5} \Rightarrow \ln x_1 = \ln x_1 \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 18)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow 2\ln(x_1 - 9) + \cancel{6} = 2\ln(x_2 - 9) + \cancel{6} \Rightarrow$

$\Rightarrow \cancel{2}\ln(x_1 - 9) = \cancel{2}\ln(x_2 - 9) \Rightarrow \ln(x_1 - 9) = \ln(x_2 - 9) \Rightarrow$

$\Rightarrow x_1 - \cancel{9} = x_2 - \cancel{9} \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 19)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow \ln(e^{2x_1} + 5) = \ln(e^{2x_2} + 5) \Rightarrow e^{2x_1} + \cancel{5} = e^{2x_2} + \cancel{5} \Rightarrow$

$\Rightarrow e^{2x_1} = e^{2x_2} \Rightarrow \cancel{2}x_1 = \cancel{2}x_2 \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 20)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow \ln\dfrac{x_1 + 1}{x_1 - 2} = \ln\dfrac{x_2 + 1}{x_2 - 2} \Rightarrow \dfrac{x_1 + 1}{x_1 - 2} = \dfrac{x_2 + 1}{x_2 - 2}$ χιαστί $\Rightarrow$

$\Rightarrow (x_1 + 1)(x_2 - 2) = (x_1 - 2)(x_2 + 1) \Rightarrow \cancel{x_1x_2} - 2x_1 + x_2 - \cancel{2} = \cancel{x_1x_2} + x_1 - 2x_2 - \cancel{2} \Rightarrow$

$\Rightarrow -3x_1 = -3x_2 \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1

4.2 21)

Αν $\boxed{f(x_1) = f(x_2)} \Rightarrow \dfrac{2\ln x_1 + 5}{3\ln x_1 - 2} = \dfrac{2\ln x_2 + 5}{3\ln x_2 - 2}$ χιαστί $\Rightarrow$

$\Rightarrow (2\ln x_1 + 5)(3\ln x_2 - 2) = (3\ln x_1 - 2)(2\ln x_2 + 5) \Rightarrow$

$\Rightarrow (2\ln x_1 + 5)(3\ln x_2 - 2) = (3\ln x_1 - 2)(2\ln x_2 + 5) \Rightarrow$

$\Rightarrow \cancel{6\ln x_1 \ln x_2} - 4\ln x_1 + 15\ln x_2 - \cancel{10} = \cancel{6\ln x_1 \ln x_2} + 15\ln x_1 - 4\ln x_2 - \cancel{10} \Rightarrow$

$\Rightarrow \cancel{-19}\ln x_1 = \cancel{-19}\ln x_2 \Rightarrow \ln x_1 = \ln x_2 \Rightarrow \boxed{x_1 = x_2}$

Άρα η f είναι 1–1