

4.6 1)

$$f(2x-3) = f(x+4) \xRightarrow{f:1-1} 2x-3 = x+4 \Rightarrow \boxed{x=7}$$

4.6 2)

$$f(x+5) = f(3x-7) \xRightarrow{f:1-1} x+5 = 3x-7 \Rightarrow -2x = -12 \Rightarrow \boxed{x=6}$$

4.6 3)

$$f(4x-9) = f(2x-11) \xRightarrow{f:1-1} 4x-9 = 2x-11 \Rightarrow 2x = -2 \Rightarrow \boxed{x=-1}$$

4.6 4)

$$f(x^2) = f(x+2) \xRightarrow{f:1-1} x^2 = x+2 \Rightarrow x^2 - x - 2 = 0 \quad \Delta = 9 \quad x_{1,2} = \frac{1 \pm 3}{2} \Rightarrow \begin{cases} \boxed{x_1 = -1} \\ \boxed{x_2 = 2} \end{cases}$$

4.6 5)

$$f(2x^2 - 7x) = f(5x - 16) \xRightarrow{f:1-1} 2x^2 - 7x = 5x - 16 \Rightarrow 2x^2 - 12x + 16 = 0 \Rightarrow$$

$$\Rightarrow x^2 - 6x + 8 = 0 \quad \Delta = 4 \quad x_{1,2} = \frac{6 \pm 2}{2} \Rightarrow \begin{cases} \boxed{x_1 = 2} \\ \boxed{x_2 = 4} \end{cases}$$

4.6 6)

$$f(5 \cdot 2^x) = f(40) \xRightarrow{f:1-1} 5 \cdot 2^x = 40 \Rightarrow 2^x = 8 \Rightarrow 2^x = 2^3 \Rightarrow \boxed{x=3}$$

4.6 7)

$$f(\ln x) = f(2) \xRightarrow{f:1-1} \ln x = 2 \Rightarrow \boxed{x = e^2}$$