

Exercise 2024-12EF-00002(1) Inverses

(1) Determine $f^{-1}(x)$ in each of the following and write it in the form $f^{-1}(x) = \dots\dots$

(a) $f(x) = 3x - 4$

(b) $f(x) = 5^x$

(c) $f(x) = -2x^2$

(d) $f(x) = \log_{0,5} x$

(2) Determine $g^{-1}(x)$ in each of the following and write it in the form $g^{-1}: x \rightarrow \dots\dots$

(a) $g: x \rightarrow \frac{x}{4}$

(b) $g: x \rightarrow \log_3 x$

(c) $g: x \rightarrow 3^{x+1}$

(d) $g: x \rightarrow -0,5x$

(3) Determine h in each of the following and write it in the form $h(x) = \dots\dots$

(a) $h^{-1}(x) = \log_7 x$

(b) $h^{-1}(x) = \frac{x-2}{3}$

(c) $h^{-1}(x) = \frac{1}{4}x^2$

(d) $h^{-1}(x) = \log x$

(4) Consider the following: $p(x) = \{(1; 7); (2; 8); (3; 9); (4; 10)\}$

(a) Is p a function? Motivate your answer.

(b) Write down the range of $p^{-1}(x)$.

(5) Explain the difference between $f^{-1}(x)$ and $(f(x))^{-1}$.