[11-09-12-T11]

Functions

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[1] Prove that the equation $y = x^3 + 5$ gives y as a function of x.

[2]

(a) Prove that the function defined by $f(x) = 3x - 7$ has an inverse function.

(b) Then find the inverse of f.

[3]

(a) Prove that the function defined by $f(x) = x^2$ has no inverse function on $\mathbb{R}$.

(b) What is the least restrictive domain on which f is invertable.

(c) Prove that f is invertable on the domain of (b)

[4]

(a) Prove that the function defined by $f(x) = x^3$, $x \in \mathbb{R}$ is invertable.

(b) Find the inverse f^{-1} of f.