SQA Past paper questions

2023 – Paper 2 – Question 6

A function $f(x)$ is defined by $f(x)=\frac{2}{x}+3,\ x>0$.

Find the inverse function, $f^{-1}(x)$. 3

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2022 – Paper 1 – Question 3

A function, h, is defined by $h(x)=4+\frac{1}{3}x$, where $x\in\mathbb{R}$.

Find the inverse function, $h^{-1}(x)$. 3

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2019 – Paper 2 – Question 8

A function, f, is given by $f(x)=\sqrt[3]{x}+8$.

The domain of f is $1\le x\le 1000,\ x\in\mathbb{R}$.

The inverse function, f^{-1}, exists.

(a) Find $f^{-1}(x)$. 3

(b) State the domain of f^{-1}. 1

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2018 – Paper 1 – Question 2

A function $g(x)$ is defined on $\mathbb{R}$, the set of real numbers, by

$$g(x)=\frac{1}{5}x-4.$$

Find the inverse function, $g^{-1}(x)$. 3

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2017 – Paper 1 – Question 6

A function, h, is defined by $h(x) = x^3 + 7$, where $x \in \mathbb{R}$.

Determine an expression for $h^{-1}(x)$. 3

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2016 – Paper 1 – Question 6

Functions f and g are defined on $\mathbb{R}$, the set of real numbers.

The inverse functions f^{-1} and g^{-1} both exist.

(a) Given $f(x) = 3x + 5$, find $f^{-1}(x)$. 3

(b) If $g(2) = 7$, write down the value of $g^{-1}(7)$. 1

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2015 – Paper 1 – Question 5

A function g is defined on $\mathbb{R}$, the set of real numbers, by $g(x) = 6 - 2x$.

(a) Determine an expression for $g^{-1}(x)$. 2

(b) Write down an expression for $g(g^{-1}(x))$. 1

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Exemplar – Paper 1 – Question 11

Functions f and g are defined on suitable domains by $f(x) = x^3 - 1$ and $g(x) = 3x + 1$.

(a) Find an expression for $k(x)$, where $k(x) = g(f(x))$. 2

(b) If $h(k(x)) = x$, find an expression for $h(x)$. 3

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