SQA Past paper questions

2019 – Paper 1 – Question 12

Functions f and g are defined by

- $f(x)=\frac{1}{\sqrt{x}}$, where $x>0$
- $g(x)=5-x$, where $x\in\mathbb{R}$.

(a) Determine an expression for $f(g(x))$. 2

(b) State the range of values of x for which $f(g(x))$ is undefined. 1

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2015 – Paper 2 – Question 2

Functions f and g are defined on suitable domains by

$$f(x)=10+x \text{ and } g(x)=(1+x)(3-x)+2.$$

(a) Find an expression for $f(g(x))$. 2

(b) Express $f(g(x))$ in the form $p(x+q)^2+r$. 3

(c) Another function h is given by $h(x)=\frac{1}{f(g(x))}$.

What values of x cannot be in the domain of h? 2

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2005 – Paper 1 – Question 4

Functions $f(x)=3x-1$ and $g(x)=x^2+7$ are defined on the set of real numbers.

(a) Find $h(x)$ where $h(x)=g(f(x))$. 2

(b) (i) Write down the coordinates of the minimum turning point of $y=h(x)$.

(ii) Hence state the range of the function h. 2

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2003 – Paper 1 – Question 9

Functions $f(x) = \frac{1}{x-4}$ and $g(x) = 2x + 3$ are defined on suitable domains.

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

(b) Write down any restriction on the domain of h. 1

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