

Question	Scheme	Marks	AOs
2(a)	$y \leq 7$	B1	2.5
		(1)	
(b)	$f(1.8) = 7 - 2 \times 1.8^2 = 0.52 \Rightarrow gf(1.8) = g(0.52) = \frac{3 \times 0.52}{5 \times 0.52 - 1} = \dots$	M1	1.1b
	$gf(1.8) = 0.975$ oe e.g. $\frac{39}{40}$	A1	1.1b
		(2)	
(c)	$y = \frac{3x}{5x-1} \Rightarrow 5xy - y = 3x \Rightarrow x(5y-3) = y$	M1	1.1b
	$(g^{-1}(x)) = \frac{x}{5x-3}$	A1	2.2a
		(2)	

(5 marks)

Notes

(a)

B1: Correct range. Allow $f(x)$ or f for y . Allow e.g. $\{y \in \mathbb{R} : y \leq 7\}$, $-\infty < y \leq 7$, $(-\infty, 7]$

(b)

M1: Full method to find $f(1.8)$ and substitutes the result into g to obtain a value.

Also allow for an attempt to substitute $x = 1.8$ into an attempt at $gf(x)$.

$$\text{E.g. } gf(x) = \frac{3(7-2x^2)}{5(7-2x^2)-1} = \frac{3(7-2(1.8)^2)}{5(7-2 \times (1.8)^2)-1} = \dots$$

A1: Correct value

(c)

M1: Correct attempt to cross multiply, followed by an attempt to factorise out x from an xy term and an x term.

If they swap x and y at the start then it will be for an attempt to cross multiply followed by an attempt to factorise out y from an xy term and a y term.

A1: Correct expression. Allow equivalent correct expressions e.g. $\frac{-x}{3-5x}$, $\frac{1}{5} + \frac{3}{25x-15}$

Ignore any domain if given.