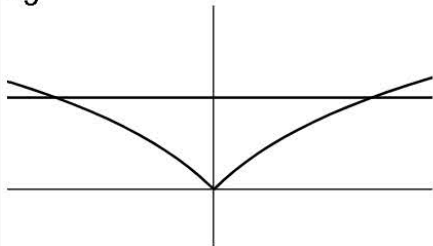


Q	Marking instructions	AO	Marks	Typical solution
17(a)	Deduces correct region eg $f(x) \geq 1$ or $y \geq 1$ Condone $f(x) > 1$ or $y > 1$	2.2a	M1	$\{y: y \geq 1\}$
	Obtains correct answer in set notation eg $\{x: x \geq 1\}$ $\{f(x): f(x) \geq 1\}$ $[1, \infty)$	2.5	A1	
	Subtotal		2	

Q	Marking instructions	AO	Marks	Typical solution
17(b)	Obtains $\{x: x > 0\}$ or $(0, \infty)$ Accept $\{y: y > 0\}$ but not $y > 0$	1.1b	B1	$x > 0$
	Subtotal		1	

Q	Marking instructions	AO	Marks	Typical solution
17(c)(i)	Obtains $\ln(x +1)$ Accept $\ln x +1 $ ISW	1.1b	B1	$h(x) = \ln(x +1)$
	Subtotal		1	

Q	Marking instructions	AO	Marks	Typical solution
17(c)(ii)	States that h does not have an inverse And States that h is not one-to-one or that h is many-to-one	2.2a	E1	The function h does not have an inverse as h is not one-to-one. For example $h(1) = \ln 2$ and $h(-1) = \ln 2$
	Explains why h is not one-to-one or why h is many-to-one For example Gives two x values such that $h(x_1) = h(x_2)$ Or Explains that using the positive and negative of the same x-value will result in the same y-value Or Sketches a graph of $y=h(x)$ with a horizontal line meeting the curve in two places. eg  Or States that f is many-to-one and that h is a function of f.	2.4	E1	
	Subtotal		2	

	Question 17 Total		6	
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