2) b) $f(z)$ has domain $\mathbb{C}$ (5)

$1+iz \neq$ - any real number, y

$\therefore 1+iz = \{x+iy : x \geq 0, y=0$ or $x=0, y>0\}$

$\therefore iz = \{x-1+iy : x \geq 1, y=0$ or $x=0, y>0\}$

And if $x=1, y>0$

Domain is ~~$\{x+y\}$~~

$\{x+iy \in \mathbb{C} : x \geq 1, y=0$ or $x=1, y>0\}$

$h(z) = (1+iz)^{i\pi}$

$\text{Log}(h(z)) = i\pi \, \text{Log}(1+iz)$

Log continuous on Domain of $g(z)$

$h(z)$ continuous on domain of $g(z)$

Domain (h) = Domain (g)