Question	Scheme	Marks	AOs
7	$a^2 + b^2 = 25$ oe	B1	1.2
	$zz^* = a^2 + b^2 \Rightarrow \log_5(zz^*) = 2$ $\Rightarrow a^2 + b^2 = 25$, $b + 2 = 2a$	M1 A1	3.1a 1.1b
	$a^2 + (2a - 2)^2 = 25$ $\Rightarrow 5a^2 - 8a - 21 = 0 \Rightarrow a = ...$ **OR** $\left(\frac{b+2}{2}\right)^2 + b^2 = 25$ $\Rightarrow 5b^2 + 4b - 96 = 0 \Rightarrow b = ...$	dM1	1.1b
	$a = 3, b = 4$ **AND** $a = -\frac{7}{5}, b = -\frac{24}{5}$ $z = 3 + 4\text{i}$ **AND** $z = -\frac{7}{5} - \frac{24}{5}\text{i}$	A1	1.1b
			(5 marks)

Notes

B1: Selects the method of making a connection between a and b with the modulus of z, by writing $a^2 + b^2 = 25$

M1: Finds zz^* and uses log rules to find a pair of simultaneous equations in a and b only.

A1: Achieves both correct equations in terms of a and b only.

dM1: Forms a 3TQ in a or b, and then solves their 3TQ to find values for a or b.
A1: Finds both correct values for a and b
Accept if written as $a = 3, b = 4$ **AND** $a = -\frac{7}{5}, b = -\frac{24}{5}$