Question	Scheme	Marks	AOs
3(a) (i)	$\lvert z - 2\mathrm{i}\rvert = 2$	B1	1.1b
(ii)	$\arg(z+2) = \frac{\pi}{4}$	B1	1.1b
		(2)	
(b)	$\{z \in \mathbb{C}: \lvert z - 2\mathrm{i}\rvert = 2\} \cap \left\{z \in \mathbb{C}: \arg(z+2) = \frac{\pi}{4}\right\}$	B1ft	2.5
		(1)	
(c)	Solves $x^2 + (y-2)^2 = 4$ and $y = x + 2$ to reach $x = \ldots$ or $y = \ldots$ Alternatively uses Pythagoras to find the length of triangle $\sqrt{2}$ and uses to reach $x = \ldots$ or $y = \ldots$	M1	3.1a
	Finds a complete coordinate or complex number	dM1	1.1b
	$z = \sqrt{2} + \left(2 + \sqrt{2}\right)\mathrm{i}$ and $z = -\sqrt{2} + \left(2 - \sqrt{2}\right)\mathrm{i}$	A1	1.1b
		(3)	
			(6 marks)

Notes:

(a) (i)

B1: Correct circle locus seen

(a) (ii)

B1: Correct half-line locus seen

(b)

B1ft: Follow through their equations with set notation

(c)

M1: Identifies a suitable strategy for finding an x or y coordinate of a point of intersection. An attempt at solving $x^2 + (y \pm 2)^2 = 4$ or 2 and $y = \pm x \pm 2$ or uses Pythagoras to find the length of triangle $\sqrt{2}$ and uses to reach $x = \ldots$ or $y = \ldots$

dM1: Finds a complete coordinate, by substitution into $y = \pm x \pm 2$ or if uses $x^2 + (y \pm 2)^2 = 4$ must reject the incorrect coordinate.

A1: Correct complex numbers.