Question	Scheme	Marks	AOs
2(a)	Centre of circle C is $(1, -1)$	B1	1.1b
	$r=\sqrt{(5-1)^2+(-4+1)^2}=5$ or $r=\sqrt{(-3-1)^2+(2+1)^2}=5$ or $r=\frac{1}{2}\sqrt{(-3-5)^2+(2+4)^2}=5$	M1	3.1a
	$\lvert z-1+\mathrm{i}\rvert=5$ or $\lvert z-(1-\mathrm{i})\rvert=5$	A1	2.5
		(3)	
(b)	$(x-1)^2+(y+1)^2=25,\quad (x-2)^2+(y-3)^2=4$ $x^2-2x+1+y^2+2y+1=25$ $x^2-4x+4+y^2-6y+9=4$ $\Rightarrow 2x+8y=32$	M1	3.1a
	$(16-4y)^2-4(16-4y)+4+y^2-6y+9=4$ or $x^2-4x+4+\left(\frac{16-x}{4}\right)^2-6\left(\frac{16-x}{4}\right)+9=4$	M1	1.1b
	$17y^2-118y+201=0$ or $17x^2-72x+16=0$	A1	1.1b
	$17y^2-118y+201=0\Rightarrow (17y-67)(y-3)=0\Rightarrow y=\frac{67}{17},3$ or $17x^2-72x+16=0\Rightarrow (17x-4)(x-4)=0\Rightarrow x=\frac{4}{17},4$	M1	1.1b
	$y=\frac{67}{17},3\Rightarrow x=\frac{4}{17},4$ or $x=\frac{4}{17},4\Rightarrow y=\frac{67}{17},3$	M1	2.1
	$4+3\mathrm{i},\ \frac{4}{17}+\frac{67}{17}\mathrm{i}$	A1	2.2a
		(6)	
			(9 marks)

Notes

(a)

B1: Correct coordinates of centre

M1: Fully correct strategy for identifying the radius. If the diameter is calculated this must be halved to achieve this mark.

A1: Correct equation using the required notation

(b)

M1: Begins the process of finding z_1 and z_2 by using the Cartesian equations to obtain the equation of the line of intersection

M1: Substitutes back into the equation of one of the circles to obtain an equation in one variable

A1: Correct 3 term quadratic

M1: Solves their 3TQ

M1: Substitutes to find values of the other variable to complete the process of finding z_1 and z_2

A1: Correct complex numbers