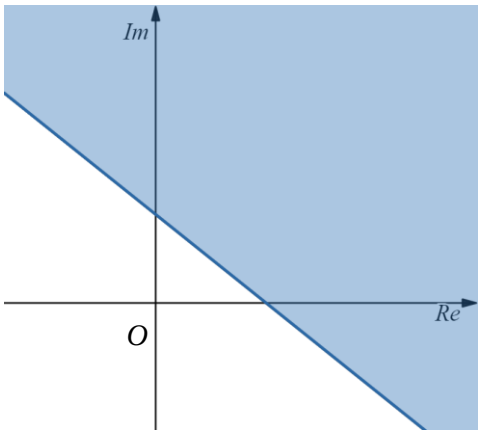
Question Number	Scheme	Marks
1(a)	$\lvert z-3-4\mathrm{i}\rvert=\lvert z+1+\mathrm{i}\rvert \Rightarrow \lvert x+\mathrm{i}y-3-4\mathrm{i}\rvert=\lvert x+\mathrm{i}y+1+\mathrm{i}\rvert$ $(x-3)^2+(y-4)^2=(x+1)^2+(y+1)^2$	M1
	$x^2-6x+9+y^2-8y+16=x^2+2x+1+y^2+2y+1 \Rightarrow ax+by+c=0$	dM1
	$8x+10y-23=0$	A1
		(3)
(a) ALT	Mid-point $\left(\frac{3-1}{2},\frac{4-1}{2}\right)$ and $m=\frac{4+1}{3+1}$	M1
	$y-\frac{3}{2}=-\frac{4}{5}(x-1) \Rightarrow ax+by+c=0$	dM1
	$8x+10y-23=0$	A1
(b)		B1
		(1)
		Total 4

Notes:

(a)

M1: Introduces $z = x + iy$ (or with other variables) and attempts a correct modulus method – the i's should be dealt with correctly but allow for e.g. minor slips in notation with them before applying Pythagoras. Allow sign slips in the i coordinates, e.g.
$(x-3)^2+(y\pm 4)^2=(x+1)^2+(y\pm 1)^2$ Must be + between the brackets.

dM1: Expands and attempts the required form.

A1: This equation or any integer multiple.

Alternative: via perpendicular bisector

M1: Uses the points (3, ±4) and (–1, ±1) to find the midpoint and gradient between them.

dM1: Correct attempt at the equation of the perpendicular bisector and rearranges to the required form. Must be using negative reciprocal of the gradient between points (but watch for those who go directly to this).

A1: This equation or any integer multiple.

(b) May be scored independently of (a) – using the perpendicular bisector.

B1: Shades the area above an appropriate line, must be in quadrants 1,2 and 4. Accept with solid, dashed or dotted line. Allow for any line with negative gradient and positive y intercept. Do not be concerned about labelling. Part (a) need not have been correct.