

5(a)	Obtain $\operatorname{Re} z$
	Obtain answer of the form $ z - a \leq b$
	Obtain answer $ z - 1 + 2i \leq 2$
5(b)	Identify the correct point
	Carry out a correct method for finding the least value of $\arg z$
	Obtain answer -61.8° or 298.2° or -1.08° or $5.2(0)^\circ$

6	Use quadratic formula to solve for w
	Use $i^2 = -1$
	Obtain one of the answers $w = \frac{-4 - 2i}{4 + 2i}$ or $w = \frac{-4 + 2i}{4 + 2i}$
	Multiply numerator and denominator by conjugate of <i>their</i> denominator
	Obtain final answers $-\frac{3}{5} + \frac{4}{5}i$ and $-1 [+ 0i]$
	Alternative Method for Question 6
	Multiply the equation by $2 - i$
	Use $i^2 = -1$
	Obtain $5w^2 + 4(2 - i)w + (2 - i)^2$
	Use quadratic formula or factorise to solve for w
	Obtain final answers $-\frac{3}{5} + \frac{4}{5}i$ and $-1 [+ 0i]$

3	$\frac{x+i(y+5)}{(x-5)+iy} \times \frac{(x-5)-iy}{(x-5)-iy}$
	Equate imaginary part of numerator to zero
	Obtain $x - y = 5$
	Correct use of modulus and solve for x and y
	$\Rightarrow z = 4 - i$
	$\Rightarrow z = 1 - 4i$
	Alternative Method for the first two marks of Question 3
	Quotient real $\Rightarrow \frac{x}{x+5} = \frac{y+5}{y}$
	Rearrange to linear form and simplify

6(a)	Obtain $\omega z_1 = 6e^{i\frac{3}{4}\pi}$
	Obtain $\omega z_2 = 3e^{i\frac{2}{3}\pi}$
6(b)	A and B plotted correctly
	C and D plotted with angles relatively correct and the same stretch implied.
6(c)	Rotation $\frac{\pi}{2}$ radians (anticlockwise), or rotation $\frac{3\pi}{2}$ radians clockwise
	Enlargement (scale) factor 2

3	Show a circle centre $(0, 3)$
	Show a circle with radius 2
	Show the point representing $(1, 2)$
	Show correct half-lines from $(1, 2)$, one at an angle of $\frac{1}{4}\pi$ and the other at an angle of $\frac{3}{4}\pi$
	Shade the correct region

5	Square $x + iy$ and equate real and imaginary parts to -1 and $-4\sqrt{5}$ respectively
	Obtain equations $x^2 - y^2 = -1$ and $2xy = -4\sqrt{5}$ from <i>their</i> expansion
	Working from two equations in two unknowns, eliminate one variable and find an equation in the other
	Obtain $x^4 + x^2 - 20 = 0$ or $y^4 - y^2 - 20 = 0$
	Obtain answers $\pm(2 - \sqrt{5}i)$ and no others