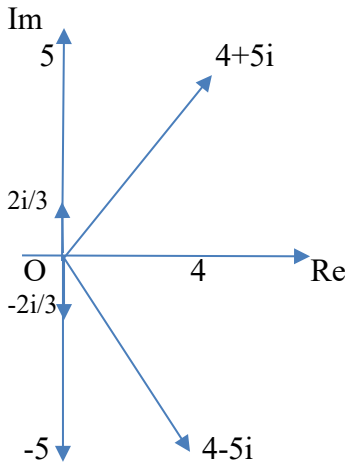
Question Number	Scheme	Notes	Marks
	$f(x)=\left(9x^2+d\right)\left(x^2-8x+(10d+1)\right)$		
5(a)	$9x^2+d=0\Rightarrow x=\pm\sqrt{-\frac{d}{9}}$ or $\pm\frac{i\sqrt{d}}{3}$	or exact equivalents	B1
	or $x=\frac{8\pm\sqrt{64-4(10d+1)}}{2}$ or $(x-4)^2-16+10d+1=0\Rightarrow x=...$	Solve $x^2-8x+(10d+1)=0$ by formula or completing the square. Must have complete constant term.	M1
	$x=4+\sqrt{15-10d}$ and $x=4-\sqrt{15-10d}$	oe with discriminant simplified. Mark final answer, do not isw.	A1
			(3)
5(b)	$x=\pm\frac{2i}{3}$ or f.t. their roots	Correct roots, or f.t.their answer for the $9x^2+d$	B1ft
	$x=4\pm5i$ or f.t. their roots	Correct roots for the given quadratic, or f.t. their 3TQ	B1ft
	SC Award B1ftB0 if only one of **each** pair is given.		
			(2)
5(c)		Two roots on imaginary axis the same distance from *O*. Follow through their *imaginary* roots from (b). B0 if real roots found. Their two *complex* roots with real and imaginary parts, one the conjugate of the other, so reflected in the real axis. Must be correct relative scale compared with the imaginary roots **if the first B1 in (c) has been awarded** (ie clearly further from *O* if correct, or f.t. their answers). But if first B0 has been given, ignore scales. Accept points or vectors. Complex numbers must be labelled in some way e.g. via scales or coordinates or vectors.	B1ft B1ft
			(2)
			Total 7