

Question		Answer	Marks	AOs	Guidance	
9	(a)	$\cos \theta + 2\sin \theta \equiv R \cos(\theta - \alpha)$ $\Rightarrow R \cos \alpha = 1, R \sin \alpha = 2$ $\Rightarrow R^2 = 5, R = \sqrt{5}$ $\tan \alpha = 2, \alpha = 1.107$	M1 B1 M1 A1 [4]	1.1a 1.1 1.1 1.1		
9	(b)	max value is $\frac{1}{(k - \sqrt{5})}$ $\frac{1}{(k - \sqrt{5})} = \frac{(3 + \sqrt{5})}{4}$ $4 = 3k - 5 + k\sqrt{5} - 3\sqrt{5}$ [This is indep of $\sqrt{5}$ so] $k = 3$	M1 M1 A1 [3]	3.1a 1.1 1.1		