Question Number	Scheme	Marks
1.(a)	$f(0.2)=...$ and $f(0.6)=...$	M1
	$f(0.2)=-0.5973...$ and $f(0.6)=0.2707...$	
	Continuous function with change of sign so root (in given interval)	A1 (2)
(b)	$f(0.4)=-0.1788$	B1
	$f(0.5)=...$	M1
	$f(0.5)=0.04114... \Rightarrow 0.4 \leqslant \alpha \leqslant 0.5$	A1 (3)
		[5]

	Notes
	Must see correct values for the accuracy marks. But allow signs only for attempts at values for the method marks.
(a)	
M1	Attempts both values, accept f(0.2)=... and f(0.6) =… with any values. (NB f(0.2) = −0.2069…, f(0.6) = 1.379 are the values with calculator in degrees mode.)
A1	Both values correct (rounded or truncated to 1d.p.) and a correct conclusion (continuous and sign change). Allusion to continuity must be mentioned somewhere in the solution. Allow other ways to show sign change e.g. <0, >0 etc.
(b)	
B1	Correct value of f (0.4); may be rounded or truncated to 1 dp
M1	Attempt value of f (0.5) or attempt value of f(0.3) if relevant for their sign of f(0.4).
A1	Correct value of f (0.5) which may be rounded to 2 dp and correct interval. Allow as open or closed interval. Accept any valid notation for the interval. Accept e.g. $0.4 < x < 0.5$