Question			Answer	Marks	AO	Guidance
10	(a)		$[f(1)] = 1^3 + (k-1) - k = 0$	M1	2.1	Substitution $x = 1$ (and not $k = 1$) clearly seen and attempt to evaluate
			So [by the factor theorem,] $(x-1)$ is a factor	A1	2.2a	Clear conclusion from correct value for f(1)
			Alternative method			
			Attempt to divide f(x) by $(x-1)$	M1		Must complete the division allow errors
			Fully correct division and clear conclusion that $(x-1)$ is a factor	A1		Clear conclusion from fully correct division ($x^2 + x + k$ seen)
				[2]		
	(b)		$f(x) = (x-1)(x^2 + x + k)$	M1	3.1a	Attempt to divide, factorise by inspection or equate coefficients
			Either $x = 1$	B1	1.1	Allow if seen unless clearly from wrong working in this part.
			Or $x^2 + x + k = 0$ which gives $x = \frac{-1 \pm \sqrt{1-4k}}{2}$	M1	2.1	Attempt to solve their quadratic factor = 0
				A1	1.1	Allow equivalent forms eg $x = -\frac{1}{2} \pm \sqrt{\frac{1}{4} - k}$
				[4]		
	(c)		Either 2 roots [$\neq 1$] when quadratic has equal roots so $k = \frac{1}{4}$	M1	3.1a	Uses discriminant FT their part (b) Also allow for equating roots or completing the square Implied by $k = \frac{1}{4}$
				A1	1.1	Cao www
			Or when $\frac{-1 \pm \sqrt{1-4k}}{2} = 1$	M1	3.1a	Also allow for stating $(x-1)$is a factor of $x^2 + x + k$
			So $k = -2$	A1	1.1	cao
				[4]		Allow **SC1** for finding k so that their quadratic factor has a positive discriminant Correct factor gives $k < \frac{1}{4}$