4	(a)		**DR** $f(0.5) = 0.25 - 0.75 - 5.5 + 6 = 0$	**B1** **[1]**	**2.1**	Attempt f(0.5) and show equal to 0 Must be using factor theorem so B0 for alternative methods	B0 for just $f(0.5) = 0$ Condone $2(0.5)^3 - 3(0.5)^2 - 11(0.5) + 6 = 0$
	(b)		**DR** $f(x) = (2x - 1)(x^2 - x - 6)$	**M1**	**1.1**	Attempt complete division by $(2x - 1)$	**DR** so need to see quadratic factor Allow equivalent complete methods eg coefficient matching / inspection / grid method Condone slip(s) in otherwise correct method
				A1	**1.1**	Obtain correct quadratic factor	Seen in division / correct coeffs eg $A = 1$ etc / at top of grid

Question			Answer	Marks	AO	Guidance	
			$f(x) = (2x - 1)(x - 3)(x + 2)$	**A1** **[3]**	**1.1**	Obtain correct fully factorised $f(x)$	Must be seen as a product of all 3 factors **SC B1** for correct factorisation with no DR
	(c)		**DR** $x = 2^y$ $2^y = 0.5$, $y = -1$ $2^y = 3$, $y = 1.58$ $2^y = -2$, no solutions as $2^y > 0$ for all y Hence $y = -1$, $y = \log_2 3$	**B1** **M1** **A1** **[3]**	**3.1a** **1.1** **2.4**	State or imply that $x = 2^y$ Attempt to find at least one value of y Obtain both correct values, and no others Must give **reason** for $2^y = -2$ having no solution	Could be implied by equating 2^y to at least one of their roots Exact or decimal 1.58 or better, or $\dfrac{\log_n 3}{\log_n 2}$ for $\log_2 3$ eg cannot log a negative number 2^y always greater than 0