FP1 Series Answers

3	$\Sigma(r^2 - r) = \Sigma r^2 - \Sigma r$	M1		
	At least one linear factor found	m1		
	$\Sigma(r^2 - r) = \frac{1}{6}n(n + 1)(2n + 1 - 3)$	m1		OE
	$\ldots = \frac{1}{3}n(n + 1)(n - 1)$	A1	4	
	Total		**4**	

6(a)(i)	$(2r - 1)^2 = 4r^2 - 4r + 1$	B1	1	
(ii)	$\sum(2r - 1)^2 = 4\sum r^2 - 4\sum r + \sum 1$	M1		
	$\ldots = \frac{4}{3}n^3 - \frac{4}{3}n + \sum 1$	m1A1		
	$\sum 1 = n$	B1		
	Result convincingly shown	A1	5	**AG**
(b)	Sum $= f(100) - f(50)$	M1A1		M1 for 100 ± 1 and 50 ± 1
	$\ldots = 1\,166\,650$	A2	4	SC $f(100) - f(51) = 1\,156\,449$: 3/4
	Total		**10**	