Question	Scheme	Marks	AOs
6	When $n = 1$, $3^n - 2^n = 1$ When $n = 2$, $3^n - 2^n = 9 - 4 = 5$ So the result is true for $n = 1$ and $n = 2$	B1	2.2a
	Assume true for $n = k$ and $n = k + 1$ so $u_k = 3^k - 2^k$ and $u_{k+1} = 3^{k+1} - 2^{k+1}$	M1	2.4
	$u_{k+2} = 5\left(3^{k+1} - 2^{k+1}\right) - 6\left(3^k - 2^k\right)$	M1	1.1b
	$u_{k+2} = 5\times3^{k+1} - 5\times2^{k+1} - 2\times3^{k+1} + 3\times2^{k+1}$	A1	1.1b
	$= 3\times3^{k+1} - 2\times2^{k+1}$ $= 3^{k+2} - 2^{k+2}$	A1	2.1
	If the statement is true for $n = k$ and $n = k + 1$then it has been shown true for $n = k + 2$ and as it is true for $n = 1$ and $n = 2$, the statement is true for all positive integers n.	A1	2.4
		(6)	
		(6 marks)	

Notes

B1: Shows the statement is true for $n = 1$ and $n = 2$

M1: Makes a statement that assumes the result is true for $n = k$ and $n = k + 1$

M1: Substitutes the assumption statements into the given result

A1: Correct expression that has been processed correctly to be in terms of 3^{k+1} and 2^{k+1}

A1: Obtains $3^{k+2} - 2^{k+2}$ with no errors and all working shown

A1: Correct complete conclusion that may be part of a narrative throughout the proof