Question	Scheme	Marks	AOs
3 (a)	Uses the sequence formula $u_{n+1}=\frac{4}{2-u_n}$ once $u_2=4$	M1	1.1b
	$(u_1=1), u_2=4, u_3=-2, u_4=1$	A1	1.1b
	Explains that since $u_1=u_4$ then sequence is periodic with period 3	A1	2.4
		(3)	
(b)	$\sum_{n=1}^{50} u_n = 16\times(1+4+-2)+4+1$	M1	3.1a
	$=53$	A1	1.1b
		(2)	
			(5 marks)

Notes:

(a)

M1: Applies the sequence formula $u_{n+1}=\frac{4}{2-u_n}$ seen once

A1: $u_2=4, u_3=-2, u_4=1$. There is no need to see either u_1 or any of the labels. Look for the correct terms in the correct order.

A1: Explains that since $u_1=u_4$ then sequence is periodic with period 3

(b)

M1: Uses a clear strategy to find the sum to 50 terms. This will usually be found using multiples of the first three terms.

For example you may see $\sum_{n=1}^{50} u_n = \left(\sum_{n=1}^{48} u_n\right) + u_{49} + u_{50} = 16\times(1+4+-2)+4+1$

$$\sum_{n=1}^{50} u_n = \left(\sum_{n=1}^{51} u_n\right) - u_{51} = 17\times(1+4+-2)-(-2)$$

A1: 53