**3.** A sequence of numbers $a_1$, $a_2$, $a_3$,..., is defined by

$$a_1 = 3,$$

$$a_{n+1} = \frac{a_n - 3}{a_n - 2}, \quad n \in \mathbb{N}.$$

(*a*) Find $\sum_{r=1}^{100} a_r$.

**(3)**

(*b*) Hence find $\sum_{r=1}^{100} a_r + \sum_{r=1}^{99} a_r$

**(1)**

**(Total for Question 3 is 4 marks)**