3. The sequence $u_1, u_2, u_3, \ldots$ is defined by

$$u_{n+1} = \frac{4}{2 - u_n} \qquad u_1 = 1$$

(a) Show that this sequence is periodic, stating the period.

(3)

(b) Hence find $\sum_{n=1}^{50} u_n$

(2)