

7 A sequence is defined by the recurrence relation

$$u_{k+1} = u_k + 5 \text{ with } u_1 = -2.$$

**(a)** Write down the values of  $u_2$ ,  $u_3$ , and  $u_4$ . **[1]**

**(b)** Explain whether this sequence is divergent or convergent. **[1]**

**(c)** Determine the value of  $u_{30}$ . **[2]**

**(d)** Determine the value of  $\sum_{k=1}^{30} u_k$ . **[2]**