4. A sequence u_1, u_2, u_3, ... is defined by

$$u_{n+1} = ku_n - 5$$
$$u_1 = 6$$

where k is a positive constant.

Given that $u_3 = -1$

(a) show that

$$6k^2 - 5k - 4 = 0$$

(2)

(b) Hence

   (i) find the value of k,

   (ii) find the value of $\sum_{r=1}^{3} u_r$

(3)