11 **(a)** The sum of the first 20 terms of an arithmetic progression is 1100. The sum of the first 70 terms is 14 350. Find the 12th term. [6]

(b) The first three terms of a geometric progression are $x+6$, $x-9$, $\frac{1}{2}(x+1)$. Show that x satisfies the equation $x^2-43x+156=0$. Hence show that a sum to infinity exists for each possible value of x. [7]