3) For any two relatively prime positive integers a_1, a_2, there exists a number $N = N(a_1, a_2)$ such that we can make up any sum of N or more cents using coins of denomination a_1 and a_2. Fr example, given coins of denomination 2 and 11, we can make up c cents for any c at least 10, but we cannot make up 9 cents. So $N(2, 11) = 10$.

Prove that $N(a_1, a_2)$ always exists and determine a simple formula for its value in terms of a_1 and a_2.