1 (a) If \( S \) is a set of real numbers containing at least 8 elements, prove that there exist three distinct members \( a, b, c \) of \( S \) such that none of \( a + b, b + c, c + a \) is in \( S \).
(b) Find a set \( S \) of real numbers with 7 elements that does not satisfy the property in part (a)

2. For every positive integer \( n \), prove that there exists an \( n \)-digit positive integer all of whose digits are odd and which is divisible by \( 5^n \).

3. Determine all strictly increasing functions \( f \) from the reals onto the reals such that \( f(x) + f^{-1}(x) = 2x \) for every real number \( x \), where \( f^{-1} \) is the function-composition inverse of \( f \), i.e. \( f^{-1}(f(x)) = f(f^{-1}(x)) = x \)

4. Find the minimum side length of a square containing 5 non-overlapping unit squares.