a) Prove that for every $\epsilon > 0$ there is a positive integer n and real numbers $\lambda_1, \ldots, \lambda_n$ such that

$$\max_{x \in [-1,1]} \left| x - \sum_{k=1}^{n} \lambda_k x^{2k+1} \right| < \epsilon.$$

b) Prove that for every odd continuous function f on $[-1, 1]$ and for every $\epsilon > 0$ there is a positive integer n and real numbers $\mu_1, \ldots, \mu_n$ such that

$$\max_{x \in [-1,1]} \left| f(x) - \sum_{k=1}^{n} \mu_k x^{2k+1} \right| < \epsilon.$$

Recall that f is odd means that $f(x) = -f(-x)$ for all $x \in [-1, 1]$.