Math 350 – Homework 5

Problem 7.1 # 26  Show that if the equation $\phi(n) = k$, where $k$ is a positive integer, has exactly one solution $n$, then $36|n$.

Problem 7.2 # 4  For which positive integers $n$ is $\sigma(n)$ odd?

Problem 7.3 # 4  Find a factor of each of the following integers.
   a) $2^{111} - 1$, b) $2^{289} - 1$, c) $2^{46,189} - 1$.
   Hint - no sophisticated factoring required, only pencil and paper!!

Problem 7.2 # 32a)  a) Show that if $n$ is an odd perfect number, then $n = p^a m^2$, where $p$ is an odd prime, $p \equiv a \equiv 1 \pmod{4}$, and $m$ is an integer.