CIS 606 Homework 2 Fall 2020

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1. $F(n) = \Omega(g(n))$ implies $g(n) = 0(f(n))$

   Answer: True

   By definition
   $f(n) = \Omega(g(n))$ which implies 0 <= c.g(n) <= f(n)
   $f(n) = \Omega(g(n))$ which implies 0 <= g(n) <= c.f(n)

   Let us assume that $f(n) = 100n^2$, $g(n) = n^2$

   $f(n) >= c.g(n)$
   $100.n^2 >= c.n^2$

   Let us assume that constant c = 50

   Based on the above notations the equations is true.

   Using the master theorem in Chapter 4, we can get $T(n) = \Theta(\log n)$.