Spring 2015, QUIZ 5, MATH-201, NAME: Score.....

You have to show your work and write down your proof.

Do you regularly read the book? Yes - No
Why?

Why do you come to class?

When comes the moment when I understand the material?
during class - when I read the book myself - in math help room - when I work on HW - never

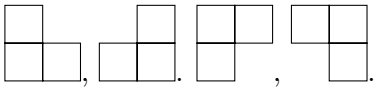
1: Write negation of the following (answer as English sentence):
If n is a natural number, then the set of primes that divide n contains a unique prime number that is bigger than the rest of the primes that divide n.
(This question is: good - bad - ugly? Difficulty: 0-9:)

2: Prove for every natural number $n \geq 1$ that numbers in Fibonacci sequence satisfy

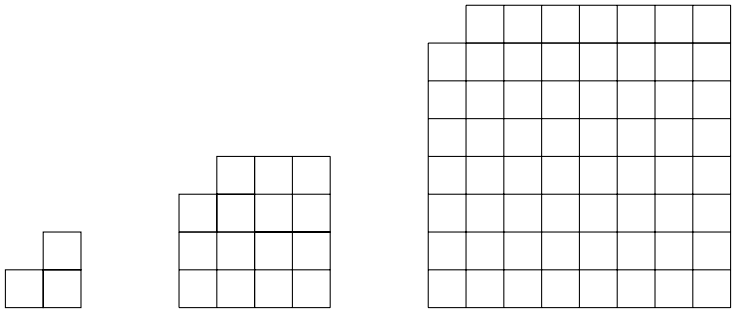
$$F_1 + F_3 + F_5 + F_7 + \ldots + F_{2n-1} = F_{2n}.$$

Example for $n = 5$ the claim is $F_1 + F_3 + F_5 + F_7 + F_9 = F_{10}$.
(This question is: good - bad - ugly? Difficulty: 0-9:)

3: *Tiling* Use induction to show that for every natural number $n \geq 1$, it is possible to tile the grid $(1, \ldots, 2^n) \times (1, \ldots, 2^n)$, that is missing left top piece by pieces of L shape, that is



Example of the grid to tile for $n = 1$, $n = 2$ and $n = 3$:



(This question is: good - bad - ugly? Difficulty: 0-9:)