Problem Set for Rocky's 1st Lecture

Fibonacci

Problem 1. Use the closed form of the Fibonacci numbers to compute the first 5 negative Fibonacci numbers. How are they related to the first 5 positive Fibonacci numbers?

$$F_n = \frac{(\frac{1+\sqrt{5}}{2})^n - (\frac{1-\sqrt{5}}{2})^n}{\sqrt{5}}$$

Problem 2. In class we saw we could sum 1+2+3+4+...+n as n(n+1)/2
Check that we can sum $1^2 + 2^2 + 3^2 + ... + n^2$ as n(n+1)(2n+1)/6
I.e. Check the first 4 or so and see that it works

Problem 3. Show that $F_1 + F_2 + F_3 + ... + F_n = F_{n+2} - 1$
Hint: Remember that $F_{n+1} = F_n + F_{n-1}$