TOPIC 6: Number Theory I (Basics) (Homework Problems):

Homework Problems:

1) Let P be the product of the first 100 positive odd integers. Find the largest k so that P is divisible by 3^k.

2) Find $n^2 + m^2$ if n and m are positive integers such that $nm + n + m = 71$ and $n^2m + nm^2 = 880$.

3) Show that the fraction $\frac{21n+4}{14n+3}$ is for all positive integers n in lowest terms.

4) Determine all positive integers n for which $2^n - 1$ is divisible by 7.
Determine all positive integers n for which $2^n + 1$ is divisible by 7.