Lec 8/31

Friday, August 31, 2018 14:19

Ex: given a collection $\mathcal{F}$ of sets with $|\mathcal{F}|=n$ show that the algebra generated by $\mathcal{F}$ has at most 2^{2^n} sets.

Bertrand's postulate: $\exists$ a prime between n and $2n$. See proof by THE BOOK

Reading: Memorize proof of bertrand's postulate $\xrightarrow{}$ Ch 2 from pfTB. Also Ch 3.

Think about: $(a+b)^n \rightsquigarrow \binom{n}{k}$. $(a+b)^x \rightsquigarrow$?

other things: $n! \longleftarrow \Gamma(x)$ connected
fractional derivative?

or look @ book

google: multinomial coefficients in multivariable calculus / taylor series.
$\hookrightarrow$ MathSciNet

Ex: play w/ diagonals of Pascal Triangle & maybe find a formula for sums of first n elements in k^{th} diagonal.

Ex: Show that integers have unique representation in terms of fibonacci base (if you don't use adjacent #s)

Given $a_n \nearrow \infty$, $a_n \in \mathbb{N}$, Do you expect (a_n) to be a "good" base (say, like 10^n or 2^n).

Ex: fix solution to "unique powers of 3" problem.

Ex: Show that 2^n is "slowest" with which you can still do well.

Ex: show that $\lim_{p\to\infty} d_p = d_\infty$.

exercises from Ch 3: 2.5.(2,3,4) 3.8.(8,9,12)