Math 50 Stat Inf: Homework 4—truncated

due Wed Feb 1

Problems now from **LM4** unless indicated. Smaller set due to Midterm 1.

4.2 : 26 (esp part c).

Next, for the standard normal cdf, $F_Z(z)$, use in Matlab `(1+erf(z))/2` rather than the tables (note `erf` is not itself the standard normal cdf). After all, we are no longer in the Victorian era! Note, to invert for z given F, use `z = erfinv(2*F - 1)`. If you prefer Stats Toolbox, you can use `normcdf` and `norminv` directly.

4.3 : 4,

5 abcd,

9 (since small numbers involved, use Continuity Correction),

12,

15,

21,

34 (hint use the rules for mean and variance of sums of variables).

A) : Use matlab or another graph-plotting package to plot the log of the binomial pdf for $n = 100$ trials with $p = 0.7$, over the full range $0 \leq k \leq 100$. Also include on this plot the log of the *normal approximation* to the binomial (note this will be an upsidedown parabola). Where do errors start to be significant? Does the normal approximation over- or under-estimate the chance of large deviations from the mean? [Hint: binomial pdf code is in website `poisson.m` from 1/23/06].

4.4 : 2, 4.

4.5 : 1, 4.