M362K (56310), Homework #4

Due: 12:30pm, Thursday, Feb. 17

Instructions: Please show all your work, not only your final answer, in order to receive credit. Please keep answers organized in the same order the problems have been assigned.

Normal approximation (2.2)

Note: In the following, only need to use the standard normal approximation (and not the skew-normal). Refer to Appendix 5 for a table of values for the standard normal cdf.

1. Pitman, p. 108, #1

2. Pitman, p. 108, #3

3. Pitman, p. 108, #6

4. Pitman, p. 109, #9

5. Pitman, p. 109, #10

6. Pitman, p. 109, #12

7. Pitman, p. 109, #13

8. Pitman, p. 134, #22

Poisson approximation (2.4)

9. Pitman, p. 121, #2

10. Pitman, p. 121, #3

11. Pitman, p. 121, #6

12. Pitman, p. 122, #7

13. The gambler's rule states the following: if you play a game n times, each time with chance $1/N$ (with N large) of winning the game, then the number of times you must play in order have a better than 50% chance of at least one win is $n \approx \frac{2}{3}N$. Show this using the Poisson approximation.