AST 475/875 Exercise #1

Due T, September 7th in class

You are photometering a star to measure its brightness by counting photons from it. After 5 minutes of integration, you find that you have received 1680 photons.

A) What is the uncertainty, σ, in the number of counts after 5 minutes
B) After 30 minutes of counting, what would you expect the signal-to-uncertainty ratio to be?
C) Plot the probability distribution of expected photons for 1 second of integration.
D) What is the probability that:
    i) you will not count any photons in 1 second?
    ii) You will count exactly 7 photons in 1 second?
    iii) You will count *at least* 7 photons in 1 second?