Question (1958 STEP IIII Q112)

There are 50,000 shares in a lottery with 1000 prizes. If a syndicate buys 100 shares, write down an approximate expression for, and evaluate approximately, the chance that it wins four or more prizes. Find also the variance of the number of prizes that may be expected. [The approximation $(1 + 1/n)^{xn} = e^x$ for large n may be used.]