

(9.11) A certain sample has a true average counting rate of 100 cpm. What is the probability that 80 counts would be obtained in a 1 min recording?

From eqn (9.33)

$$N_{true} := 100 \quad N_{obs} := 80 \quad P_N := \left(2 \cdot \pi \cdot N_{true}\right)^{\frac{1}{2}} \cdot e^{-\frac{1}{2} \cdot \frac{(N_{true} - N_{obs})^2}{N_{true}}}$$
$$P_N = 0.005 \quad \text{or} \quad P_N = 0.54 \cdot \%$$