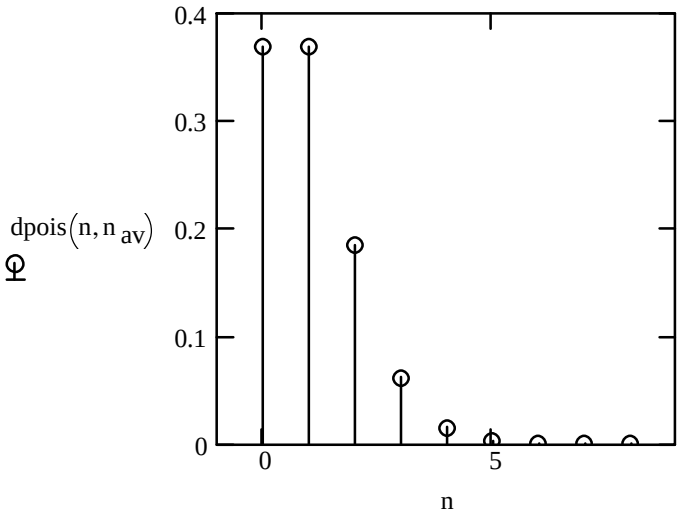
Poisson Distribution

Physics 258 - DS Hamilton 2004

This worksheet displays several histograms for the Poisson distribtion. Begin with defining a range vaiable n, which will be the number of counts in a particular time interval. The parameter n_{av} is the average number of counts in that time interval, and dpois(n,n_{av}) is the probability that n counts were actually measured.

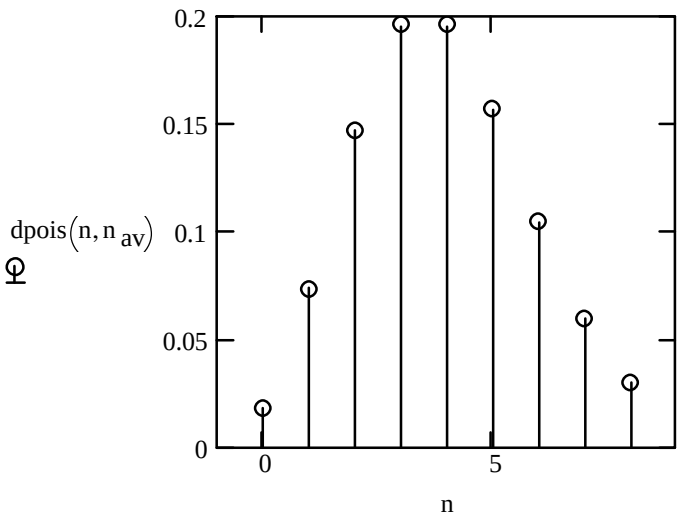
$n := 0 .. 8$

$n_{av} := 1$



$$\text{dpois}(n, n_{av}) = \begin{bmatrix} 0.368 \\ 0.368 \\ 0.184 \\ 0.061 \\ 0.015 \\ 0.003 \\ 5.109 \cdot 10^{-4} \\ 7.299 \cdot 10^{-5} \\ 9.124 \cdot 10^{-6} \end{bmatrix}$$

$n_{av} := 4$ As n_{av} gets larger, the probability function gets more Gaussian.



$$\text{dpois}(n, n_{av}) = \begin{bmatrix} 1.832 \cdot 10^{-2} \\ 7.326 \cdot 10^{-2} \\ 0.147 \\ 0.195 \\ 0.195 \\ 0.156 \\ 0.104 \\ 5.954 \cdot 10^{-2} \\ 2.977 \cdot 10^{-2} \end{bmatrix}$$