Reading Material

From *Numerical Recipes*:

- Chapter 7: sections 0, 1, 2, 3, 6.
- Chapter 7 functions: ran1.c, gasdev.c
Assignment Set 5-A  
Due May 13th

5.1 Use Monte Carlo methods to produce and plot the distribution functions listed below for different total numbers of Monte Carlo events N=100, 1000, 10000:

1. \( f(y) = 1 \) \((0 < y < 1)\)
2. \( f(y) = \frac{1}{2\pi} \) \((0 < y < 2\pi)\)
3. \( f(y) = \frac{1}{y_o} \exp(-y/y_o) \), where \( y_o = 5.0 \) \((y > 0)\)
4. \( f(y) = \frac{1}{\sqrt{2\pi}\sigma^2} \exp(-y^2/2\sigma^2) \), where \( \sigma = 10.0 \) \((y > 0)\)

For each of the four cases, create a single plot where the Monte Carlo results for different N values as well as the actual f(x) from its analytical expression are shown.