

In MATLAB, there exists the built-in function `randn` to generate samples of a standard normal random variable. Further, we may generate samples of Gaussian (μ, σ) random variables by stretching and shifting the standard normal random variables generated by `randn`.

For other continuous random variables, we may use transformation from a uniform (0,1) random variable into other types of random variables (read the ppt). Conveniently, MATLAB also includes `rand` function to generate random samples of uniform (0,1) random variables.

For the following MATLAB codes:

a.	<pre>function x=gaussrv(mu,sigma,m) x=mu+(sigma*randn(m,1));</pre>
b.	<pre>function x=exponentialrv(lambda,m) x=-(1/lambda)*log(1-rand(m,1));</pre>
c.	<pre>function x=uniformrv(a,b,m) x=a+(b-a)*rand(m,1);</pre>

1. Describe what they do, how they work, and extensively explain all lines.
2. For each function generate 100000 samples. You are free to choose the other values.
3. Plot the histogram of the samples in (2) using `hist` command with 100 bins.

Notes:

You may want to try the equivalent MATLAB built-in functions for the functions in (a), (b), and (c):
`normrnd`, `exprnd`, and `unifrnd`