

UNIFORM DISTRIBUTION: $X \sim u(0,1)$	$f(x) = \begin{cases} 1 & 0 < x < 1 \\ 0 & \text{otherwise} \end{cases}$	$\mu = \frac{1}{2}$	$\sigma^2 = \frac{1}{12}$	
GAUSSIAN (NORMAL) DISTRIBUTION: $X \sim N(\mu, \sigma^2)$	$f(x) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-(x-\mu)^2/2\sigma^2}$	μ	σ^2	Standard gaussian has $\mu = 0$ and $\sigma^2 = 1$
EXPONENTIAL DISTRIBUTION: $X \sim \text{ex}(\beta)$	$f(x) = \begin{cases} \frac{1}{\beta} e^{-x/\beta} & x > 0 \\ 0 & \text{otherwise} \end{cases}$	$\mu = \beta$	$\sigma^2 = \beta^2$	$f(x)$ = gamma dist with $\alpha = 1$
GAMMA DISTRIBUTION: $X \sim \gamma(\alpha, \beta)$	$f(x) = \begin{cases} \frac{1}{\beta^\alpha \Gamma(\alpha)} x^{\alpha-1} e^{-x/\beta} & x > 0 \\ 0 & \text{otherwise} \end{cases}$	$\mu = \alpha\beta$	$\sigma^2 = \alpha\beta^2$	$f(x)$ = pdf for time of occurrence of α th event of Poisson proc with event rate $\lambda = 1/\beta$
LOGNORMAL DISTRIBUTION: $X \sim \ln N(\mu_Y, \sigma_Y^2)$	$f_X(x) = \begin{cases} \frac{1}{x\sqrt{2\pi\sigma_Y^2}} e^{-[\ln(x)-\mu_Y]^2/2\sigma_Y^2} & x > 0 \\ 0 & \text{otherwise} \end{cases}$	$\mu_X = e^{\mu_Y + \frac{\sigma_Y^2}{2}}$	$\sigma_X^2 = e^{2\mu_Y + \sigma_Y^2} \left(e^{\sigma_Y^2} - 1 \right)$	If Y is gaussian distributed, then $X = e^Y$ is lognormal.
CHI-SQUARED DISTRIBUTION: $X \sim \chi_n^2$	$f(x) = \begin{cases} \frac{1}{2^{v/2} \Gamma(v/2)} x^{(v-2)/2} e^{-x/2} & x > 0 \\ 0 & \text{otherwise} \end{cases}$	$\mu = v$	$\sigma^2 = 2v$	Sum of v standard gaussians squared is chi-squared of degree v .