3) Normal Distribution

$\mu = 0$

$\sigma = 1$

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\left(\frac{(x-\mu)^2}{2\sigma^2}\right)}$$

$$P(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

Uniform Distribution

$\mu = 0$

$\sigma = 1$

$a = -\sqrt{3}$

$b = \sqrt{3}$

$$f(x) = \begin{cases} \frac{1}{2\sqrt{3}} & -\sqrt{3} \le x \le \sqrt{3} \\ 0 & \text{otherwise} \end{cases}$$