

3.

we have $U(0,1)$ & $Y = (1)$
 we have to get $X \sim F(x)$

$$F(x) = P(X \leq x)$$

let $\text{transform}(U)$ be a transform

such that $\text{transform}(U) = X$

$$\begin{aligned} \therefore F(x) &= P(X \leq x) \\ &= P(\text{transform}(U) \leq x) \end{aligned}$$

The transform function has to be monotonic increasing,

$$\text{so } F(x) = P(U \leq \text{transform}^{-1}(x))$$

* By uniform distribution,

$$F_U(y) = P(U \leq y) = y$$

$$\therefore F_X(x) = \text{transform}^{-1}(x)$$

$$(or) \text{transform}(x) = F_X^{-1}(x) \text{ when } x \in [0,1]$$

\therefore we know F_X if we can find its inverse function.