MFC Week 6:

$$P(X \in A) = \mathbb{E}_p\left[\mathbb{1}_A(X)\right]$$

$$\delta_x(y) = \begin{cases} 1, & \text{if } x = y \\ 0, & \text{otherwise} \end{cases}$$

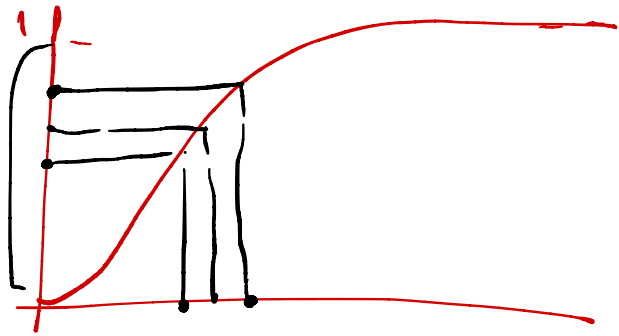
" $\varphi(x) = \int \delta_x(y)\, \varphi(y)\, dy$ "

$$\pi(x) = \frac{\gamma(x)}{Z}, \qquad \gamma(x) = p(y|x)\, p(x)$$

$$\underbrace{p(x|y)}_{\pi(x)} = \frac{\overbrace{p(y|x)\, p(x)}^{\gamma(x)}}{\underbrace{p(y)}_{\to Z}}$$

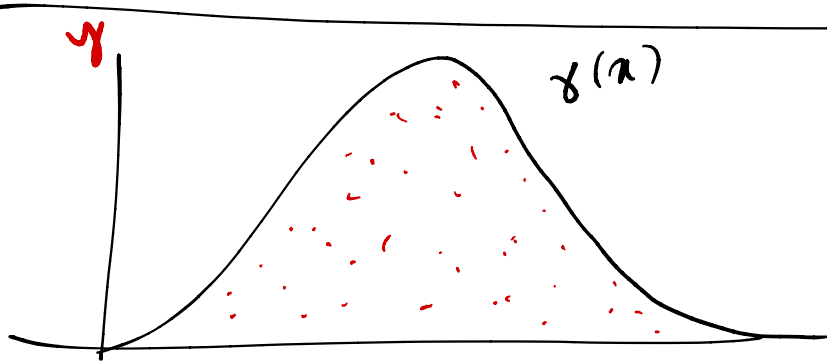
$$(\varphi, \pi^N) = \frac{1}{N} \sum_{i=1}^{N} \varphi(X_i)$$

$$\mathbb{E}\left[(\varphi, \pi^N)\right] = \frac{1}{N} \sum_{i=1}^{N} \underbrace{\mathbb{E}_\pi\left[\varphi(X_i)\right]}_{(\varphi, \pi)} = (\varphi, \pi)$$



$u^i \sim U(0,1)$

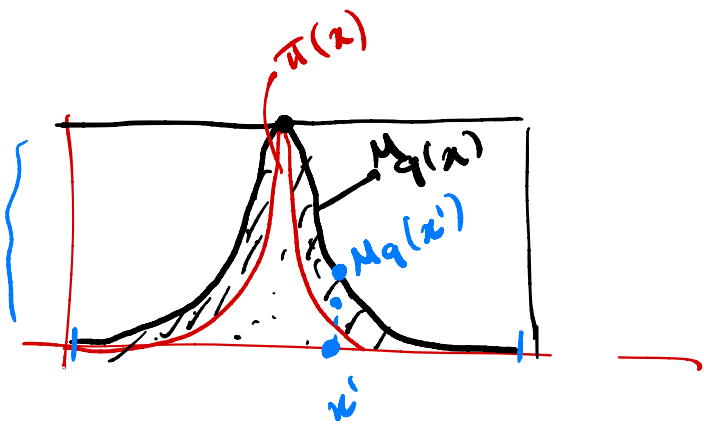
$X^i = F_X^{-1}(u^i)$



(x^i, y^i)

x x^i

$\sim \pi(x)$



$x' \sim q(x)$

$u' \sim U(0, Mq(x'))$