

If f is the pdf.

$$P(a \leq X \leq b) = \int_a^b f(x) dx.$$

F is the cdf.

$$\text{What is } P(a \leq X \leq b) = P(a < X \leq b).$$

$$= P(X \leq b) - P(X \leq a)$$

$$= F(b) - F(a)$$

\Rightarrow If F is non decreasing