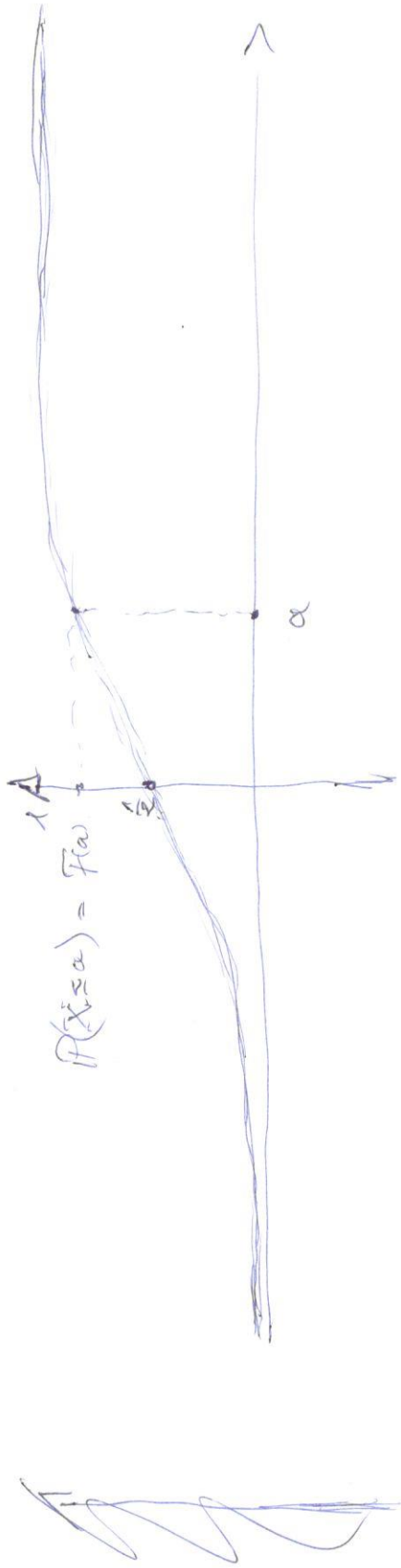


$$F(x) = \frac{1}{2} + \frac{1}{\pi} \arctan(x)$$

$F(x)$



$$\begin{aligned} P(X > 4) &= 1 - P(X < 4) = 1 - F(4) = 1 - \left(\frac{1}{2} + \frac{1}{\pi} \arctan(4) \right) \\ &= \frac{1}{2} - \frac{1}{\pi} \cdot \frac{\pi}{4} = \frac{1}{4} \end{aligned}$$

$$\begin{aligned} P(0 < X < 1) &= F(1) - F(0) = \left(\frac{1}{2} + \frac{1}{\pi} \arctan(1) \right) - \left(\frac{1}{2} + \frac{1}{\pi} \arctan(0) \right) \\ &= \frac{1}{2} + \frac{1}{4} - \frac{1}{2} - 0 = \frac{1}{4} \end{aligned}$$

$$\begin{aligned} P(X > \sqrt{3}) &= 1 - P(X < \sqrt{3}) = 1 - F(\sqrt{3}) \\ &= 1 - \frac{1}{2} - \frac{1}{\pi} \frac{\pi}{3} = \frac{1}{6} \approx 16.4\% \end{aligned}$$