

Quiz 8 Attempt 2

$$P\left(\frac{X_{n:n}}{\sqrt{n}} \leq y\right) = P(X_{n:n} \leq y\sqrt{n}) = \left[F_X(y\sqrt{n})\right]^n$$

$$= \left[1 - \frac{1}{y^2 n}\right]^n \mathbb{1}\{y\sqrt{n} \geq 1\}$$

$$\longrightarrow e^{-1/y^2} \mathbb{1}\{y > 0\}$$