Distribuição Qui-Quadrado

$Y \sim \chi^2(n)$
n: graus de liberdade

$$f(y) = \frac{1}{\Gamma(\frac{n}{2})2^{n/2}} y^{\frac{n}{2}-1} e^{-y/2}, \quad y > 0$$

$$E(Y) = n$$

$$Var(Y) = 2n$$

Distribuição T-student

$T \sim t(n)$

$$f(t) = TDen(t; n) = \frac{\Gamma(\frac{n+1}{2})}{\Gamma(\frac{n}{2})\sqrt{\pi n}} \left(1 + \frac{t^2}{n}\right)^{-(n-1)/2}$$

$$E(T) = 0, \quad n \geq 2$$

$$Var(T) = \frac{n}{n-2}, \quad n \geq 3$$

$Z \sim N(0,1)$ e $X \sim \chi^2(n)$

$$T = \frac{Z}{\sqrt{X/n}}$$

é chamada de t de Student com n graus de liberdade. $T \sim t(n)$