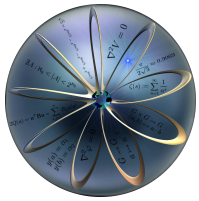

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Cauchy random variable

Canonical name	CauchyRandomVariable
Date of creation	2013-03-22 11:54:32
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Entry type	Definition
Classification	msc 60A10
Synonym	Cauchy distribution

X is a **Cauchy random variable** with parameters $\theta \in \mathbb{R}$ and $\beta > 0 \in \mathbb{R}$, commonly denoted $X \sim Cauchy(\theta, \beta)$ if

$$f_X(x) = \frac{1}{\pi\beta[1 + (\frac{x-\theta}{\beta})^2]}.$$

Cauchy random variables are used primarily for theoretical purposes, the key point being that the values $E[X]$ and $Var[X]$ are undefined for Cauchy random variables.