



### Definition

Given a distribution  $p : \Omega \rightarrow \mathbf{R}$ , the *cumulative distribution* (or *cumulative distribution function, cdf*) of a random variable  $x : \Omega \rightarrow \mathbf{R}$  is the function  $F : \mathbf{R} \rightarrow \mathbf{R}$  defined by

$$F(t) = \mathbf{P}(x \leq t),$$

for all  $t \in \mathbf{R}$ .

### Properties

The cumulative distribution of any random variable is

1. *piecewise constant* and
2. *right continuous*.



