Descrip	Cotter	Notes	Walpole et al.	Definition
cumulative distribution	$F(x)$	$F(x)$	$F(x)$	$P(X \le x)$
probability	$P\{X = x\}$	$P\{X = x\}$	$P(X = x)$	Probability that $X = x$
density	$p(x)$	$p(x)$	$f(x)$	$\frac{d}{dx} P(X = x)$
joint density	$p(x,y)$	$p(x,y)$	$f(x,y)$	$\frac{d}{dx}\frac{d}{dy} P(X = x \text{ and } Y = y)$
marginal density of x	$p_X(x)$	$p_X(x)$	$g(x)$	$\int_{-\infty}^{\infty} f(x,y)dy$
marginal density of y	$p_Y(y)$	$p_Y(y)$	$h(y)$	$\int_{-\infty}^{\infty} f(x,y)dx$
conditional density	$p(y \mid X = x)$	$p_{Y\mid X=x}(y)$	$f(y \mid X = x)$	$\frac{f(x,y)}{f_X(x)} = \frac{f(x,y)}{\int_{-\infty}^{\infty} f(x,y)dy}$
mean	μ_X	μ_X	μ_X	$\int_{-\infty}^{\infty} x f_X(x)dx$
mean	$E\{X\}$	$E\{X\}$	$E(X)$	$\int_{-\infty}^{\infty} x f_X(x)dx$
mean	$E\{g(X,Y)\}$	$\mu_{g(x,y)}$	$E(g(X,Y))$	$\int_{-\infty}^{\infty} g(x,y) f(x,y)dydx$
variance	σ_X^2	$E\{(X - \mu_X)^2\}$	σ_X^2	$E(X^2) - \mu_X^2$
variance	σ_{XX}	σ_{XX}	-	$E(X^2) - \mu_X^2$
covariance	σ_{XY}	$E\{(X - \mu_X)(Y - \mu_Y)\}$	σ_{XY}	$E(XY) - \mu_X \mu_Y$
variance	$\sigma_{g(X,Y)}^2$	$E\{(g(x,y) - \mu_{g(x,y)})^2\}$	$\sigma_{g(X,Y)}^2$	$E(g^2(x,y)) - \mu_{g(x,y)}^2$
correlation	ρ_{XY}	ρ_{XY}	ρ_{XY}	$\sigma_{XY} / \sigma_X \sigma_Y$