

ArcSin Distribution

$$f(x) = \frac{1}{\pi\sqrt{x(1-x)}} \quad 0 < x < 1$$

Transformation	General PDF	Example: ArcSin()										Support	Comment
		PDF	CDF	HF	IDF	μ	σ^2	MF	MGF	HF Shape			
x^2	✓	✓	✓	✓	✓	✓	✓	✓	✓	BT	0, 1	piecewise CDF	
\sqrt{x}	✓	✓	✓	✓	∂	✓	✓	✓	✓	IFR	0, 1		
x^{-1}	✓	✓	✓	✓	✓	✓	✓	∂	✓	DFR	0, 1		
$\arctan(x)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	1, $\pi/4$		
e^x	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	1, e		
$\ln(x)$	✓	✓	✓	✓	✓	∂	∂	∂	∂		$-\infty, 0$		
e^{-x}	✓	✓	✓	✓	✓	✓	✓	✓	∂	BT	0, 1		
$-\ln(x)$	✓	✓	✓	✓	✓	✓	✓	∂	∂	IFR	$-\infty, 0$		
$\ln(x+1)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	0, $\ln(2)$		
$1/\ln(x+2)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	$1/\ln(2), 1/\ln(3)$		
$\tanh(x)$	✓	✓	✓	✓	∂	∂	∂	∂	∂	BT	1, $\tanh(1)$		
$\sinh(x)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	1, $\sinh(1)$		
$\operatorname{arcsinh}(x)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	$0, -\ln(\sqrt{2}-1)$		
$\operatorname{csch}(x+1)$	✓										$-2/(e^{-2}-e^2), 2/(e-e^{-1})$		
$\operatorname{arccsch}(x+1)$											$\ln(2)-\ln(\sqrt{5}-1), \ln(1+\sqrt{2})$		
$1/\tanh(x+1)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	$(-e^{-2}-e^2)/(e^{-2}-e^2), (e+e^{-1})/(e-e^{-1})$		
$1/\sinh(x+1)$	✓	✓	∂	∂		∂	∂	∂	∂		$-2/(e^{-2}-e^2), 2/(e-e^{-1})$		
$1/\operatorname{arcsinh}(x+1)$	✓	✓	✓	✓	✓	∂	∂	∂	∂	DFR	$-1/\ln(\sqrt{5}-2), 1/\ln(1+\sqrt{2})$		
$1/\operatorname{csch}(x)+1$	✓	✓	∂	∂		∂	∂	∂	∂	BT	$1, -1/2e^{-1}+1/2e+1$		
$\tanh(x^{-1})$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	$(e-e^{-1})/(e+e^{-1}), 1$		
$\operatorname{csch}(x^{-1})$	✓	✓									$0, 2/(e-e^{-1})$		
$\operatorname{arccsch}(x^{-1})$	✓	✓	✓	✓	✓	∂	∂	∂	∂	BT	$0, \ln(1+\sqrt{2})$		

Legend

Symbol	Meaning
✓	Exists, Closed Form
∂	Exists, Not Closed Form
\emptyset	Not Possible
	Not Calculated