Performance Comparison: Python vs Cython Implementations
(Percentage Speedup for Arithmetic, Trigonometric, and Differentiation Operations)

Category	Operation	Percentage Speedup
Arithmetic, Logarithmic, and Exponential	$x + y$	37.26
	$x - y$	30.65
	$x \times y$	31.79
	x/y	23.24
	$\exp(x)$	23.37
	$\log(x)$	15.06
Trigonometric Functions	$\sin(x)$	19.38
	$\cos(x)$	18.55
	$\tan(x)$	18.03
	$\sinh(x)$	23.10
	$\cosh(x)$	20.92
	$\tanh(x)$	21.02
Differentiation of Functions		
Sigmoid: Binary classification activation.	$f(x) = \frac{1}{1+e^{-x}}$	27.78
Tanh: Activation for recurrent neural networks.	$f(x) = \tanh(x)$	23.51
ReLU: Popular activation in deep learning.	$f(x) = \max(0, x)$	32.01
Softplus: Smooth ReLU variant in probabilistic models.	$f(x) = \log(1 + e^x)$	27.35
MSE: Loss function for regression.	$f(x) = (x - 1)^2$	28.86
BCE: Loss function for binary classification.	$f(x) = -[y \log(x) + (1 - y) \log(1 - x)]$	28.93