

Translated Logarithmic Lambert Function and its Applications to Three-Parameter Entropy

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Abstract

The translated logarithmic Lambert function is defined and basic analytic properties of the function are obtained including the derivative, integral, Taylor series expansion, real branches and asymptotic approximation of the function. Moreover, the probability distribution of the three-parameter entropy is derived which is expressed in terms of the translated logarithmic Lambert function.

Keywords. Lambert function, entropy, logarithmic function, Tsallis entropy