

**A NOTE ON THE EXTENDED COMPLETE AND
INCOMPLETE BETA FUNCTIONS**

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Abstract: The range of applicability of the beta function had been enlarged in various applications by introducing an extra parameter to generalize it to an extended beta function. The generalization carries over trivially to the incomplete beta function as well. Here we derive certain relations between the integral of the incomplete extended beta function and the complete version, which will also hold for the standard beta function. These results lead to relations for the extended beta function and hence the standard beta function. In particular, it is showed that the difference between the function with first variable shifted by any integer $n \geq 1$ and that of the function with the first variable shifted by one is the same as the corresponding difference for the second variable.

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