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John C. Wierman* (jwierma1@gmail.com), Dept. of Applied Mathematics & Statistics, 100 Whitehead Hall, Johns Hopkins University, Baltimore, MD 21218. *An unexpected expectation trick for maximums and minimums of two random variables.*

A trivial identity involving the maximum and minimum of two random variables can be used to simplify the calculation expectations of certain functions of the maximum and minimum, such as moments, the moment-generating function, and the covariance. The proof relies on the linearity of expectation, and does not require independence or identical distribution of the random variables. The result is accessible to students in a calculus-based probability course, in which it could be used in in-class examples or as a homework exploration. The trick was discovered and was very beneficial in undergraduate research on the astronaut problem in rendezvous search theory. (Received September 18, 2017)