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Illustration of Logs and Anti-Logs

Note: The essential property of the logarithm ("log") function is that it converts products into sums: log.(xy) = log.x + log.y. In particular, log.(x^2) = 2log.x.

Note: The anti-log of x is the inverse of the log of x. The anti-log of x is also called the exponential of x, and is written "exp.x". Therefore, for each $t > 0$, t = exp.(log.t). Substituting xy for t, we have, xy = exp.(log(xy)). Applying the essential property of the logarithm, we then have xy = exp.(log.x + log.y). This is the formula used in doing calculations.

x	log.x
exp.x	x
10	1
25	1.4 (approximately)
100	2
625	2.8 (approximately)
1000	3
10000	4

Example 1: $100^2 = \text{exp.}\left(\text{log.}\left(100^2\right)\right) = \text{exp.}\left(2\,\text{log.}100\right)$
$= \text{exp.}\left(2\times 2\right) = \text{exp.}\,4 = 10000.$

Example 2: $25^2 = \text{exp.}\left(\text{log.}\left(25^2\right)\right) = \text{exp.}\left(2\,\text{log.}25\right).$
$= \text{exp.}\left(2\times 1.4\right) = \text{exp.}\left(2.8\right) = 625.$

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