

# Mathematical Preliminaries

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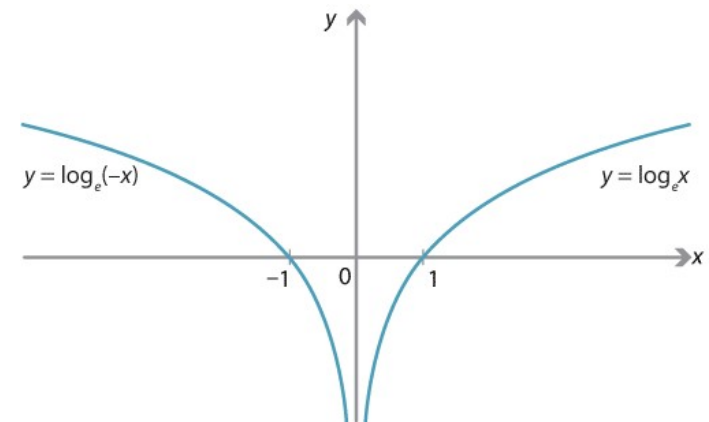
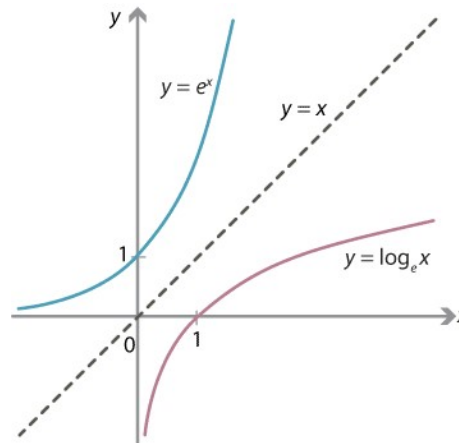
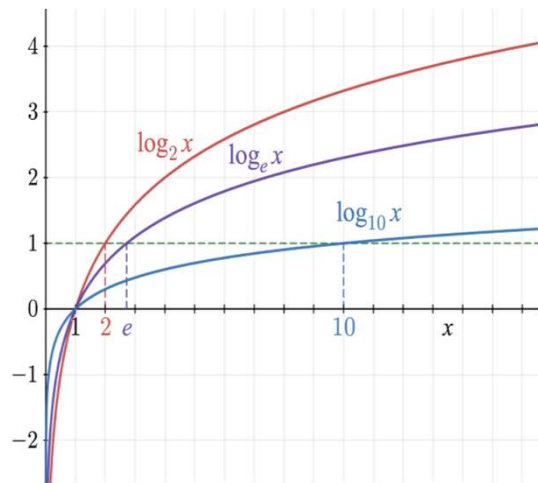
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# Information Theory

- $\log(1) = 0$ , and  $-\log(x)$  increases as **x** decreases from **one** to **zero**.



# Information Theory

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- The information obtained from **the occurrence of two independent events** is the sum of the information obtained from **the occurrence of the individual events**.

log base 2 (the unit is bits)

log base e (the unit is nats)

log base 10 (the unit is hartleys)



# Exercise

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- [https://en.wikipedia.org/wiki/Gaussian\\_function](https://en.wikipedia.org/wiki/Gaussian_function)

