Chapter 4

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4.1 Probabiility Density Functions

Def : A continuous RV is one in which each of the following is true

- the set of all possible values contains infinite number of possibilities on an interval of the real number line
- no value has positive probability for all x

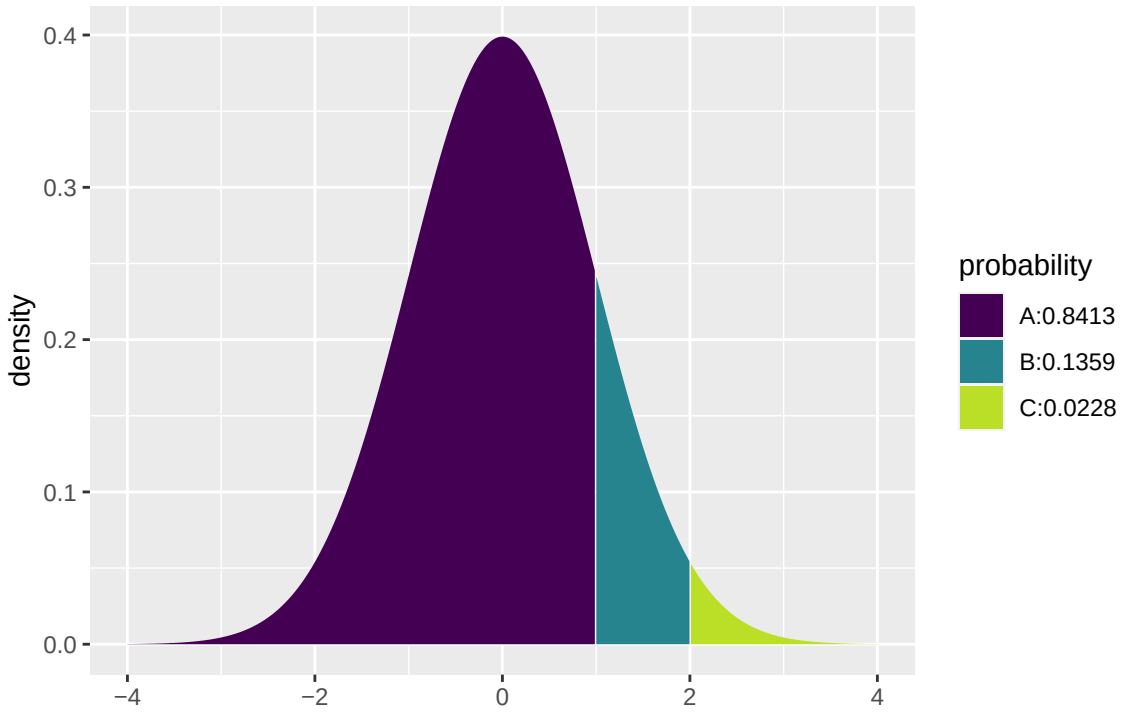
$$P(a \leq X \leq b) = P(a < X \leq b) = P(a \leq X < b)$$

- The pdf can not be listed as a table due to the "number" of outcomes

The pdf of a continuous random variable X given by f(x) and has the following properties

1. $f(x) \geq 0$ for all x
2. $\int_{-\infty}^{\infty} f(x)dx = 1$
3. $P(a < X < b) = \int_a^b f(x)dx$

- The graph of f(x) lies on or above x-axis


0.4
0.3
0.2
0.1
0.0
density
−4
−2
0
2
4
probability
A:0.8413
B:0.1359
C:0.0228